



# Utah Water Assessment & Conditions Monitoring (Drought Webinar)

The meeting will begin shortly



Thank you to our contributors

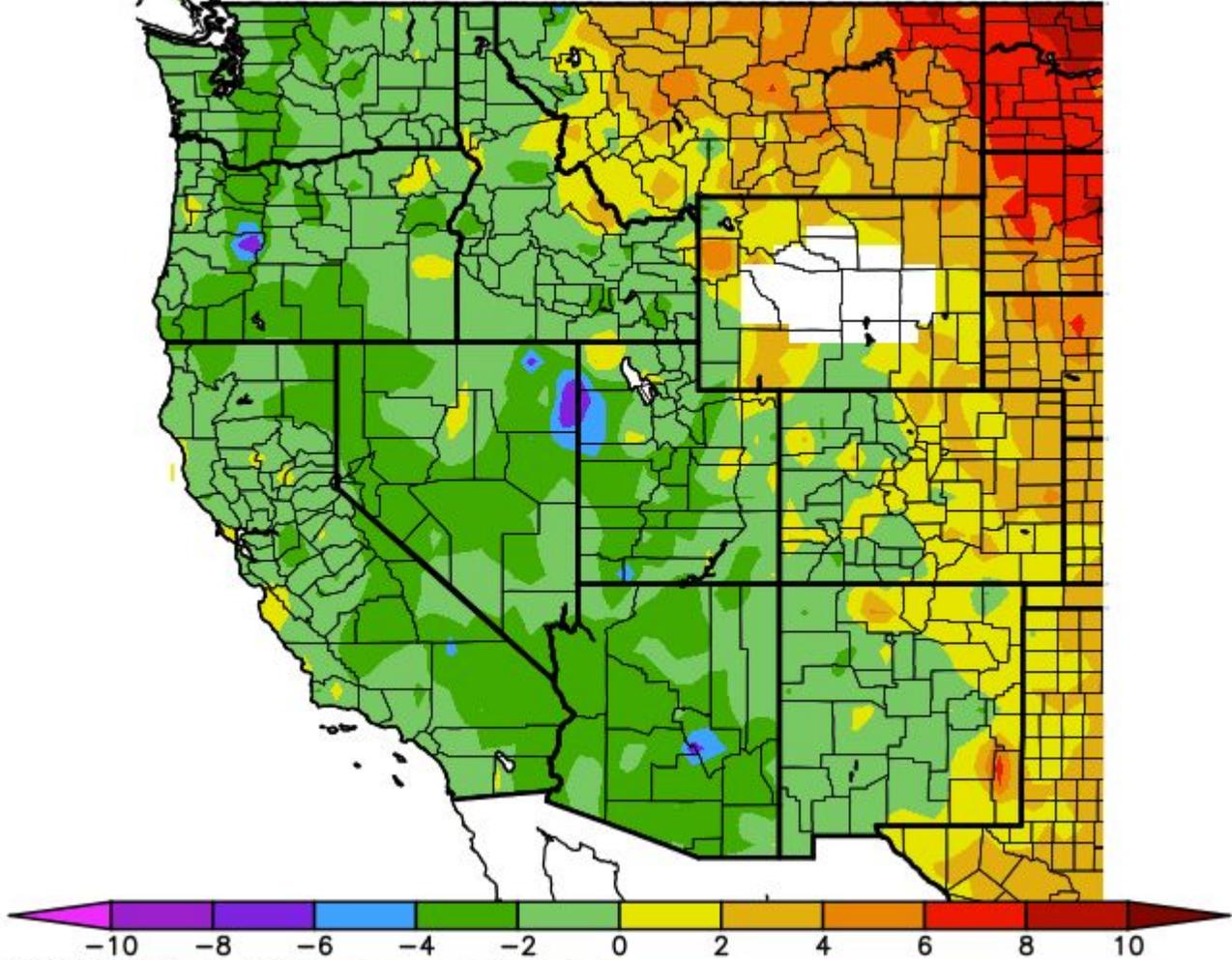


# **Utah Water Assessment & Conditions Monitoring Webinar**

**October 19, 2021**

# One Month Temperatures (Percent of Average)

Ave. Temperature dep from Ave (deg F)  
9/18/2021 - 10/17/2021

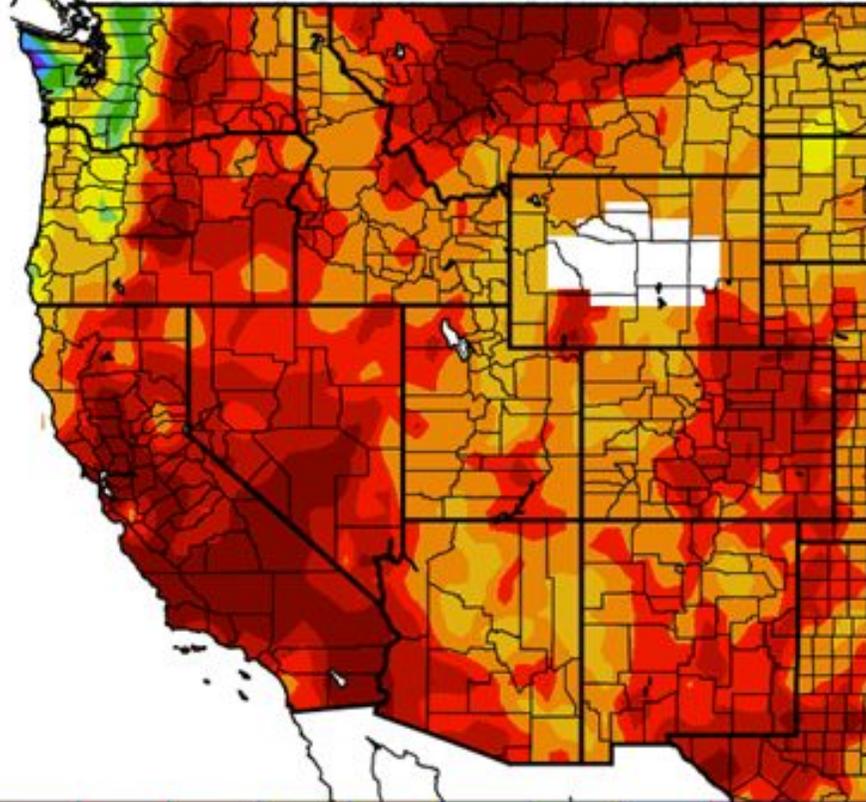


Agency - Utah Climate Center  
Presenter - Jon Meyer

Generated 10/18/2021 at WRCC using provisional data.  
NOAA Regional Climate Centers

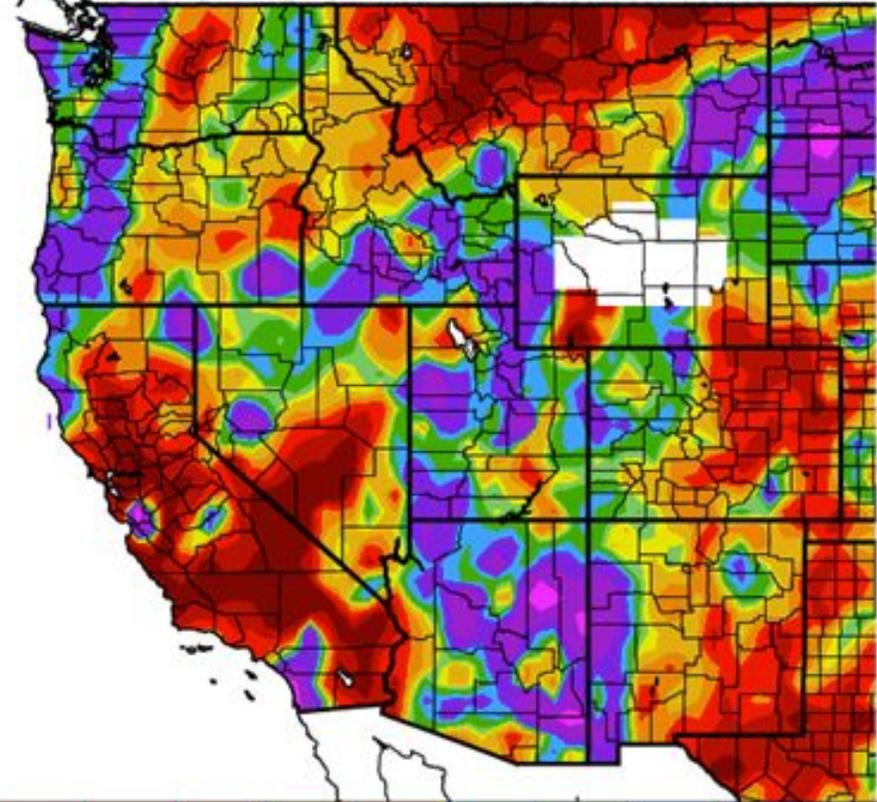
# One Month Precipitation

Total Precipitation (in.)  
9/18/2021 - 10/17/2021



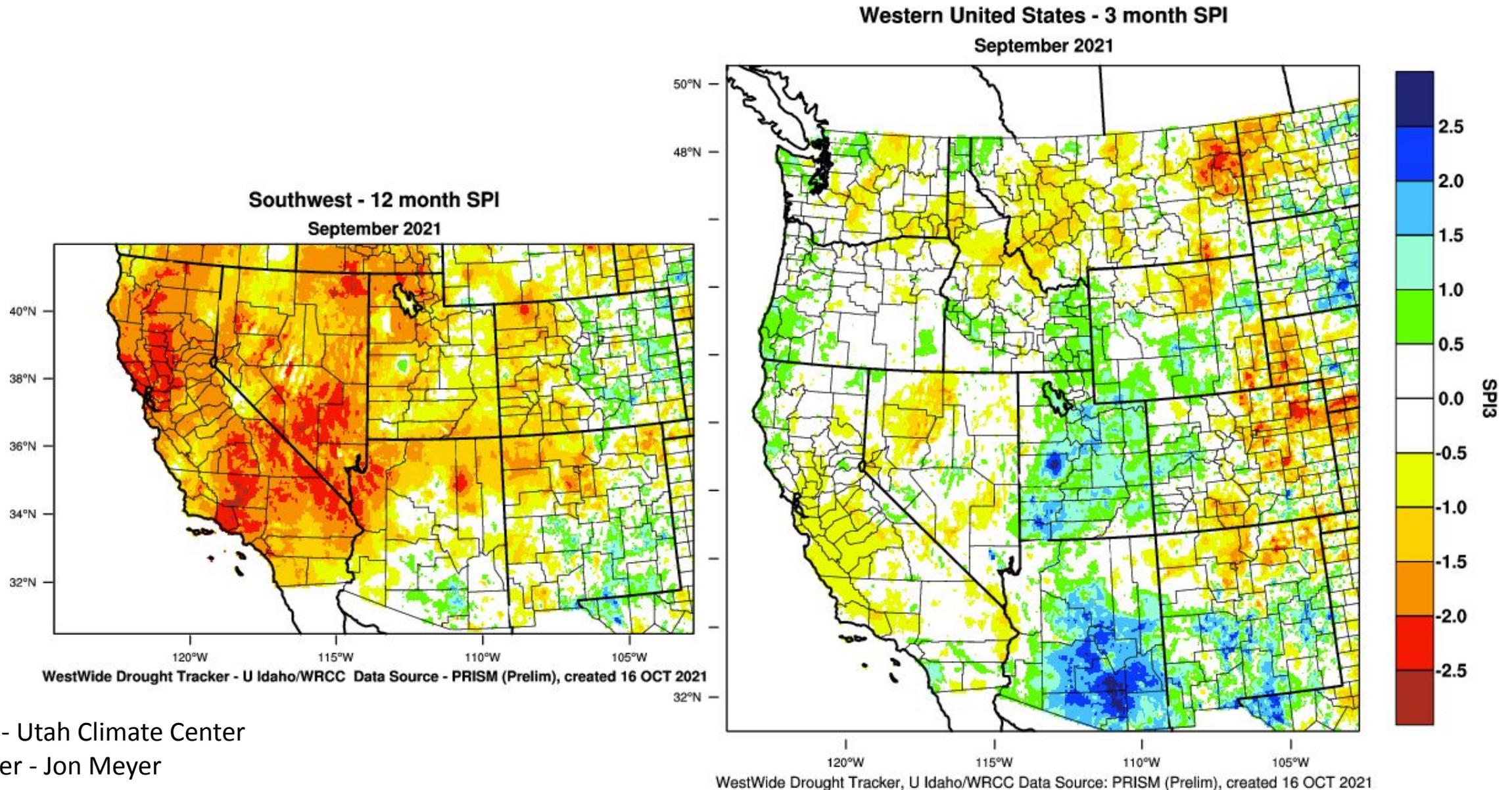
Generated 10/18/2021 at WRCC using provisional data.  
NOAA Regional Climate Centers

Percent of Average Precipitation (%)  
9/18/2021 - 10/17/2021



Generated 10/18/2021 at WRCC using provisional data.  
NOAA Regional Climate Centers

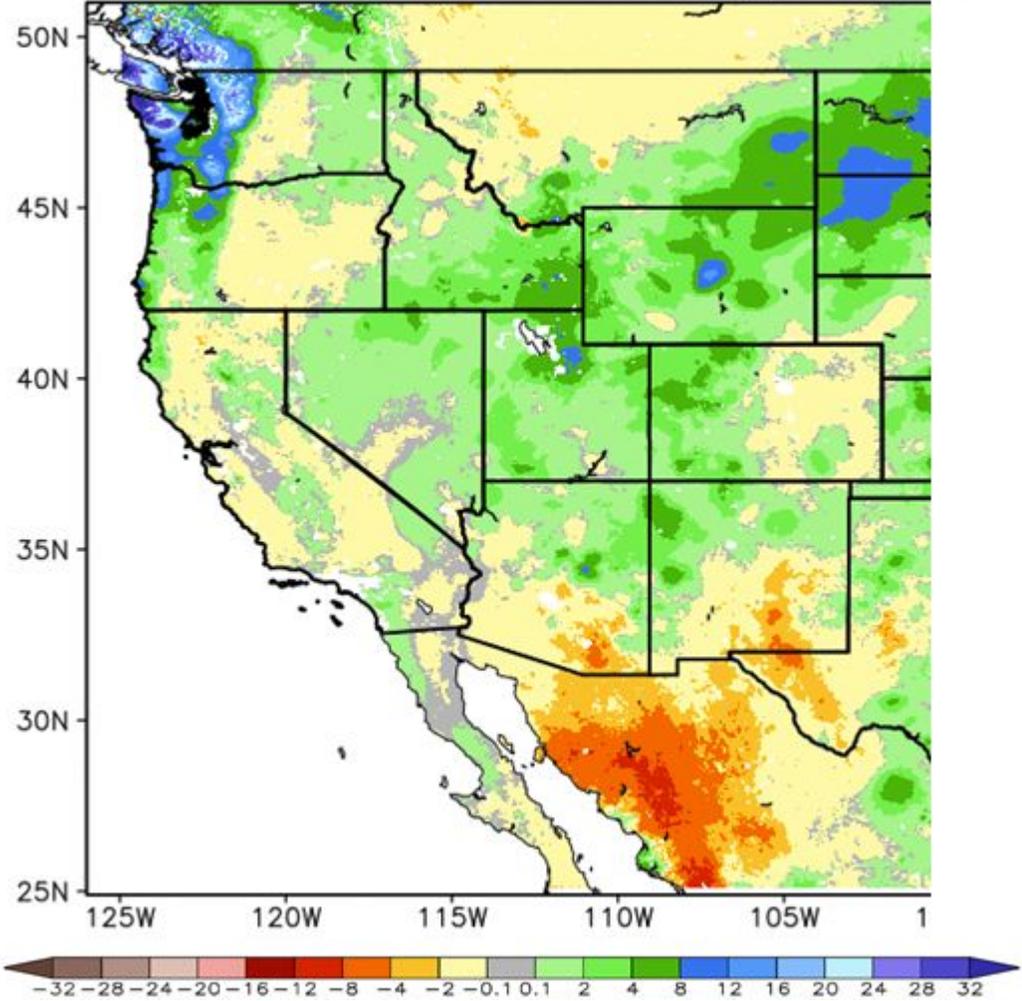
# Water Year and 3-month Standardized Precipitation Index



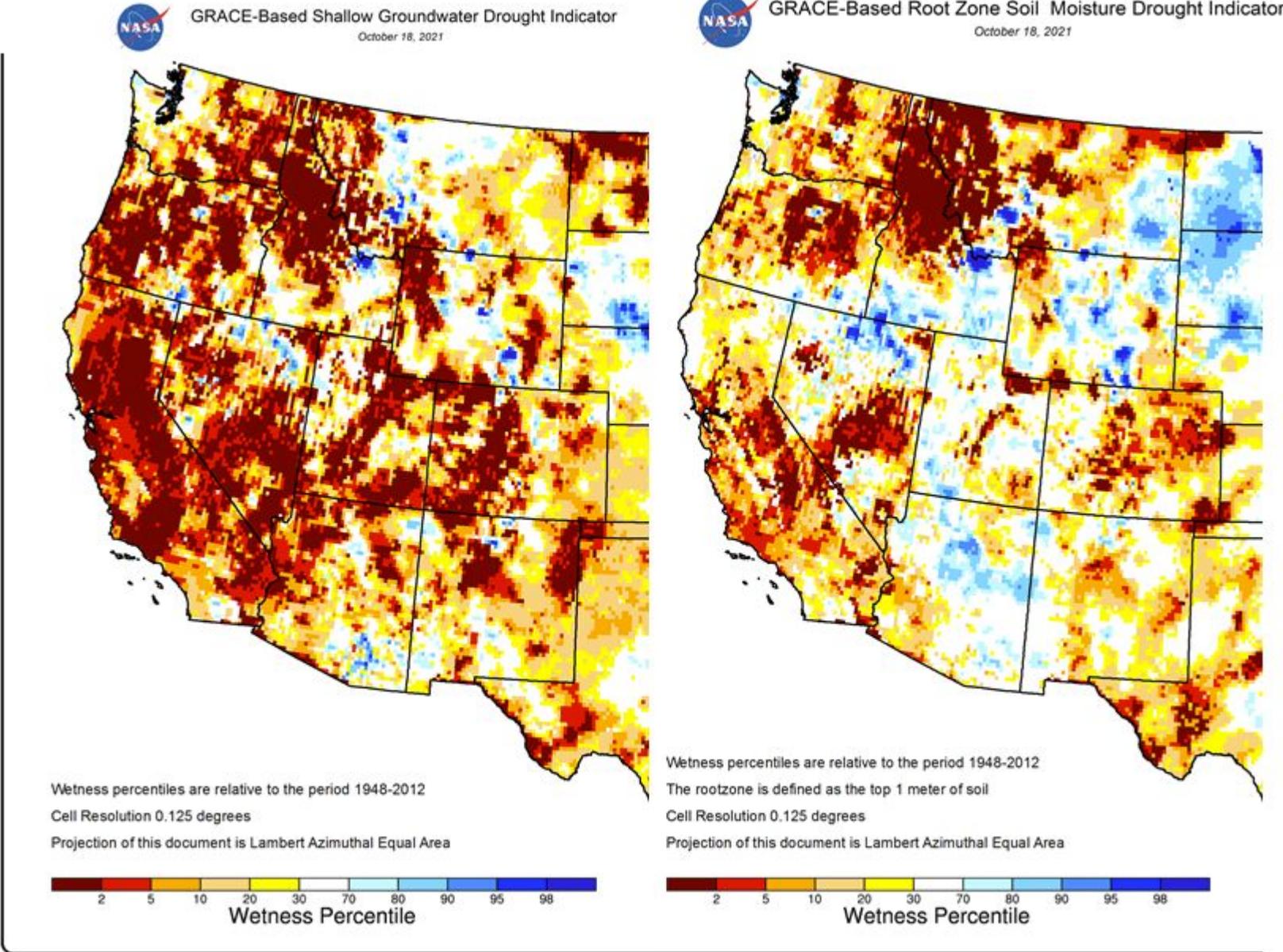
Agency - Utah Climate Center  
Presenter - Jon Meyer

# Modeled one-month soil moisture changes

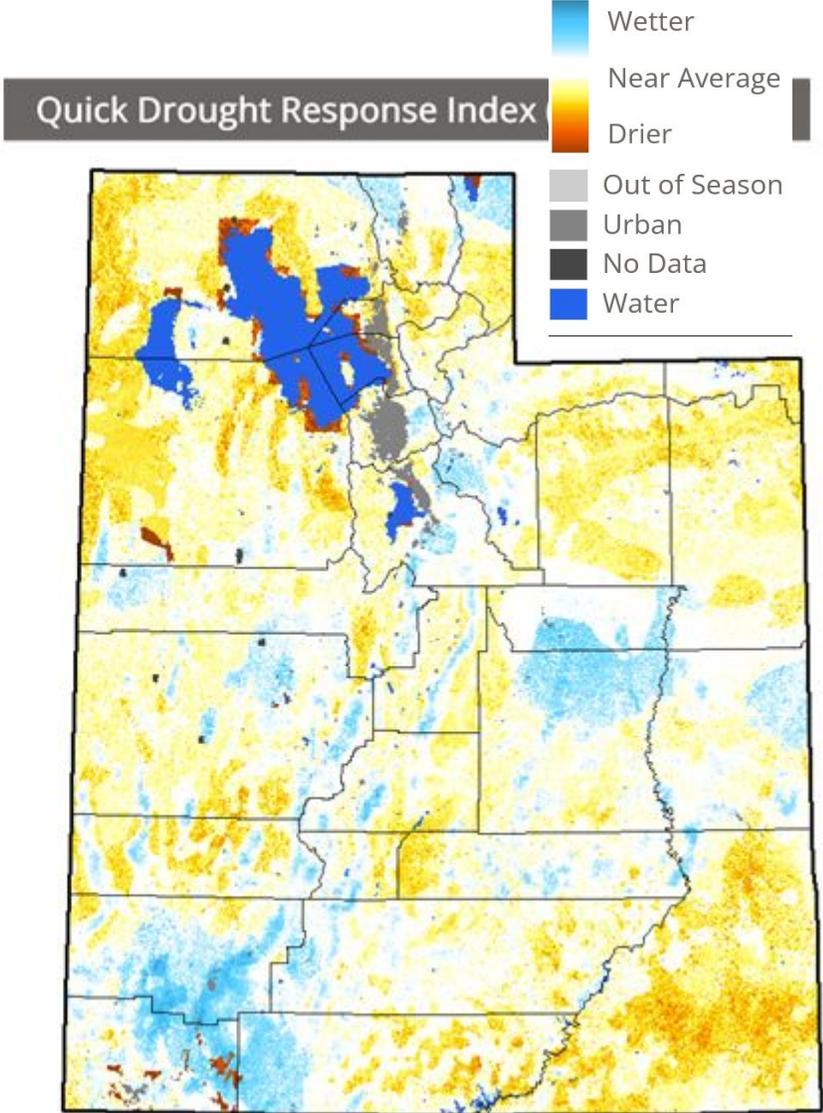
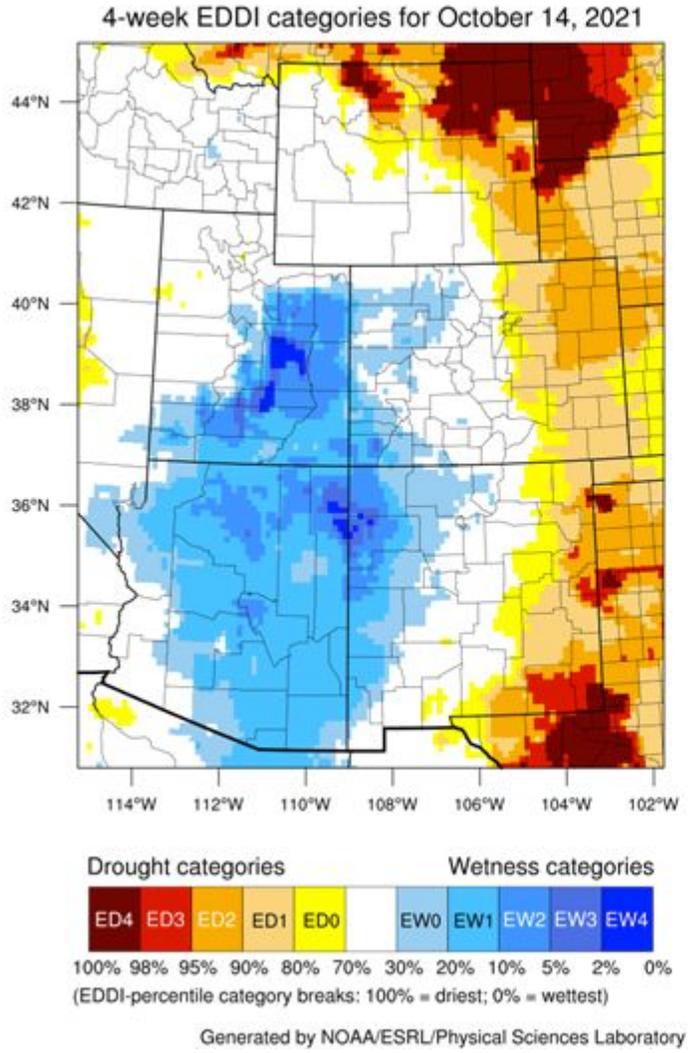
1-Month Difference in Column Relative Soil Moisture (%) valid 12z 19 Oct 2021



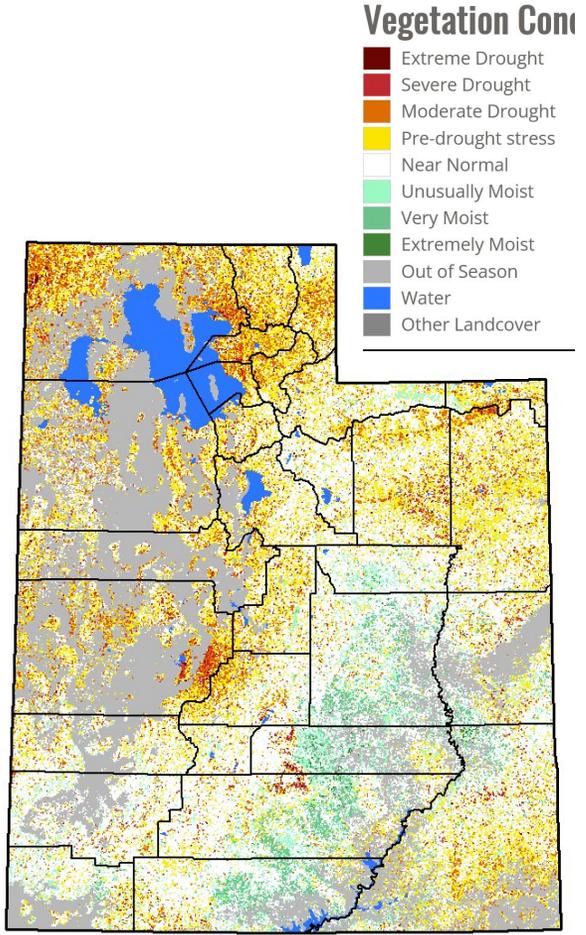
# GRACE Satellite soil moisture



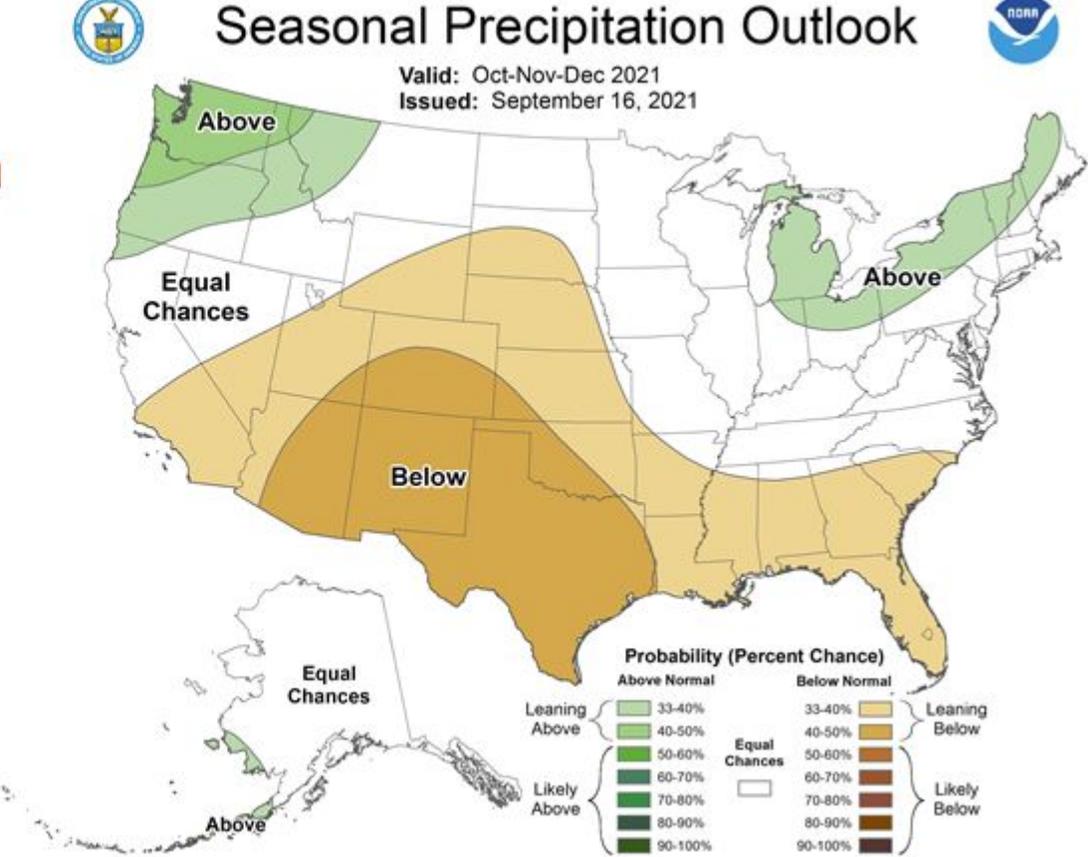
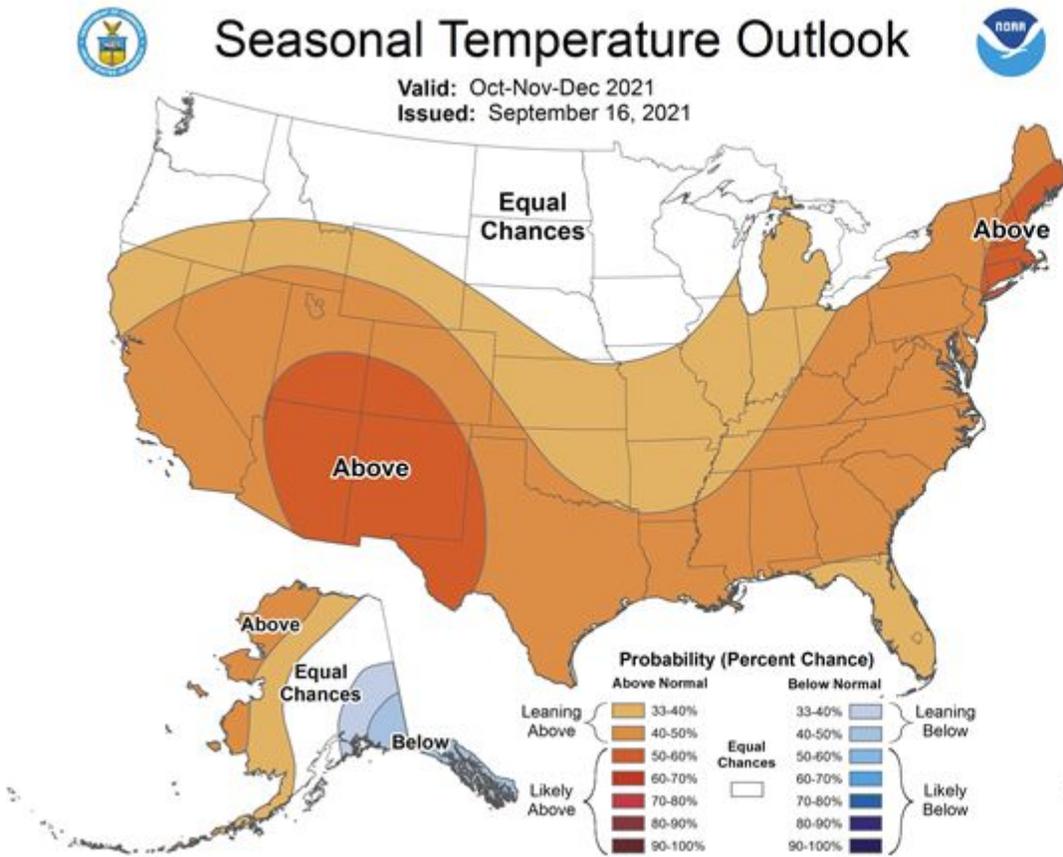
# Drought Indices



## Vegetation Drought Response Index (VegDRI)

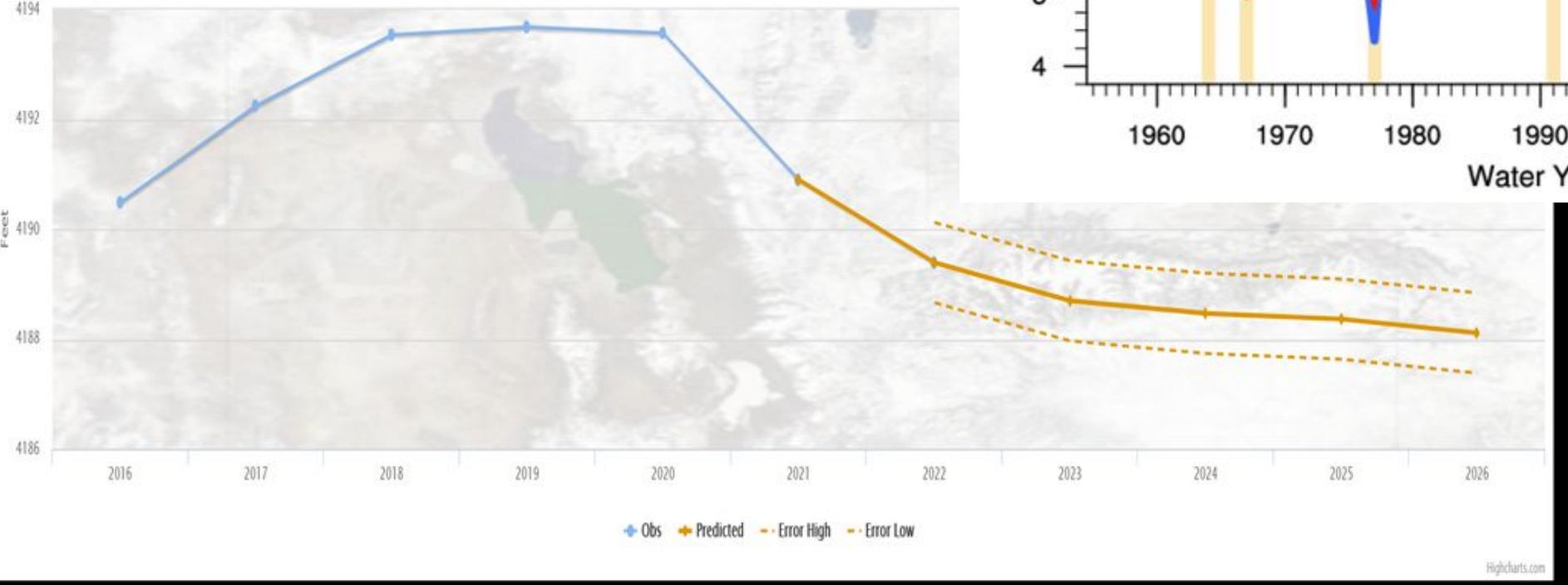


# CPC 3-month outlook (Oct-Dec)

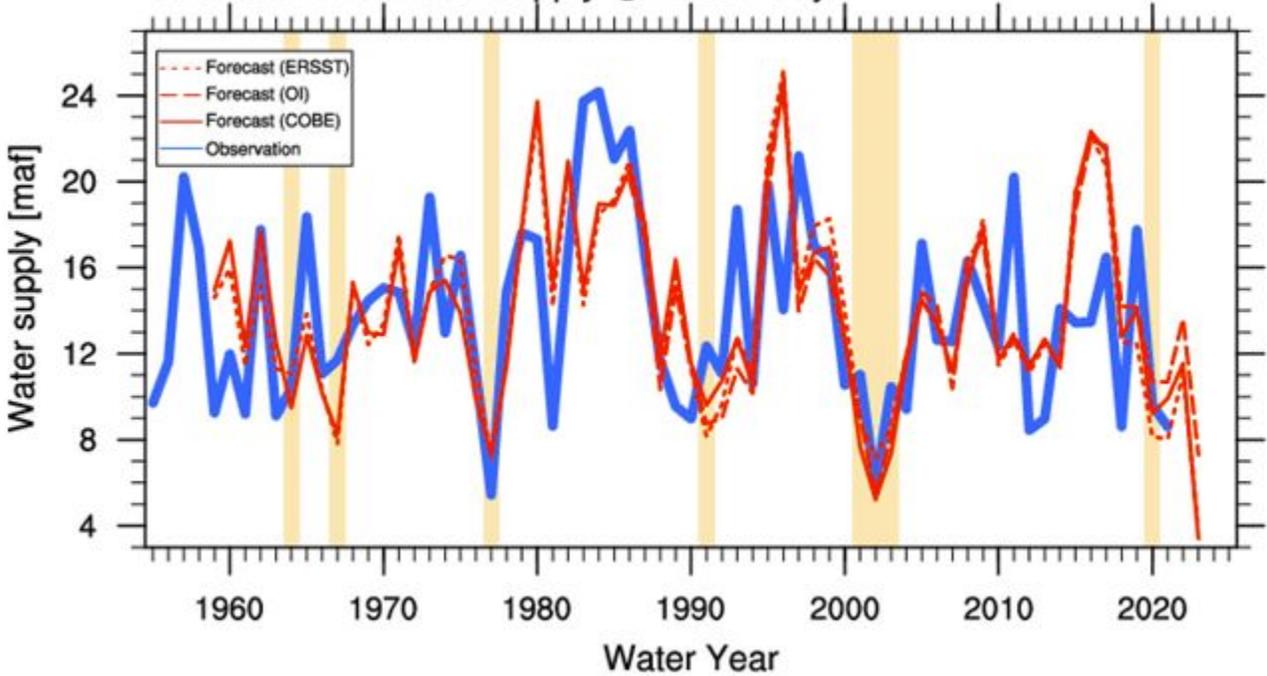


# UCC long-term outlook

Great Salt Lake Annual Level Prediction



Colorado River water supply @ Lees Ferry



# Snowpack

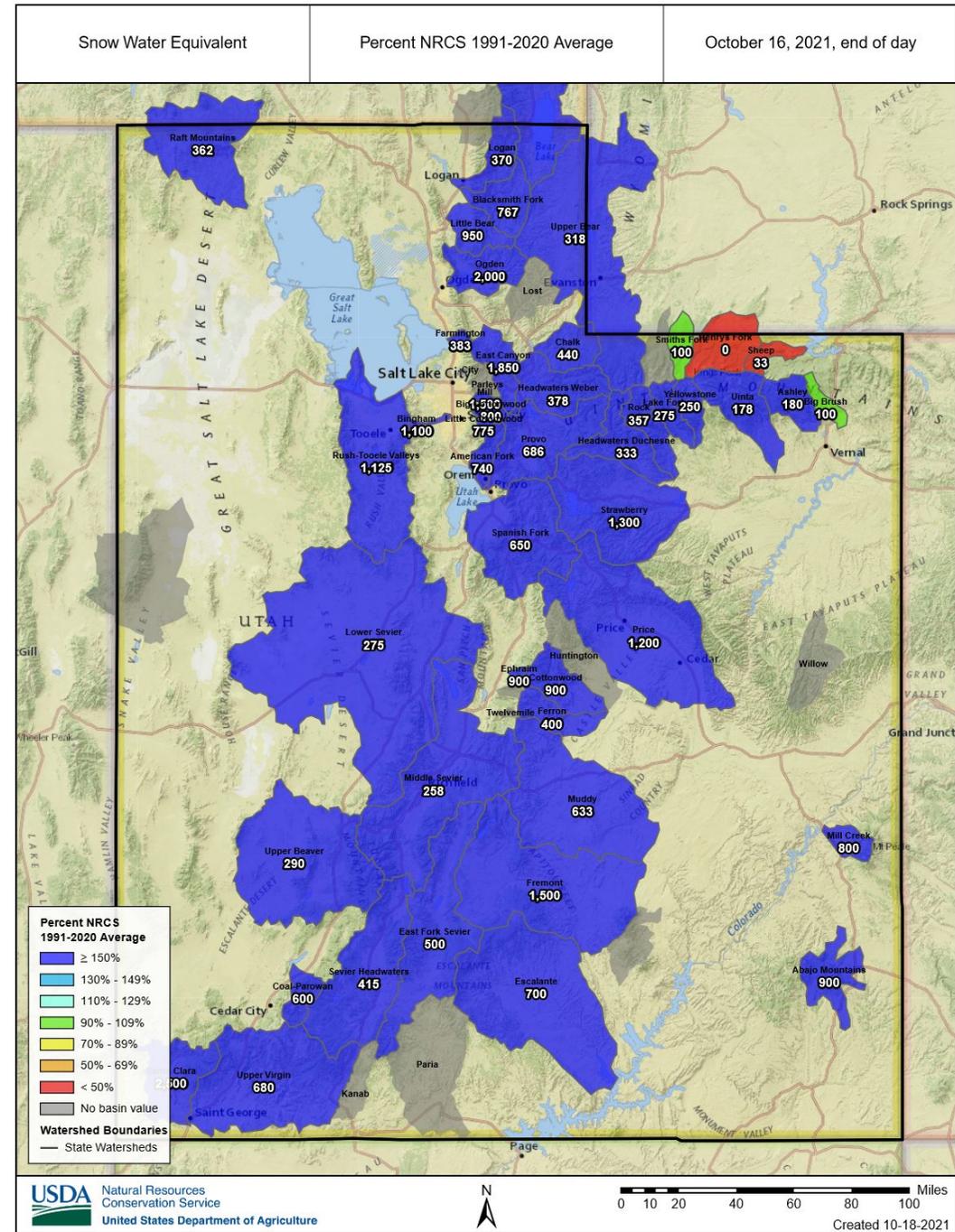
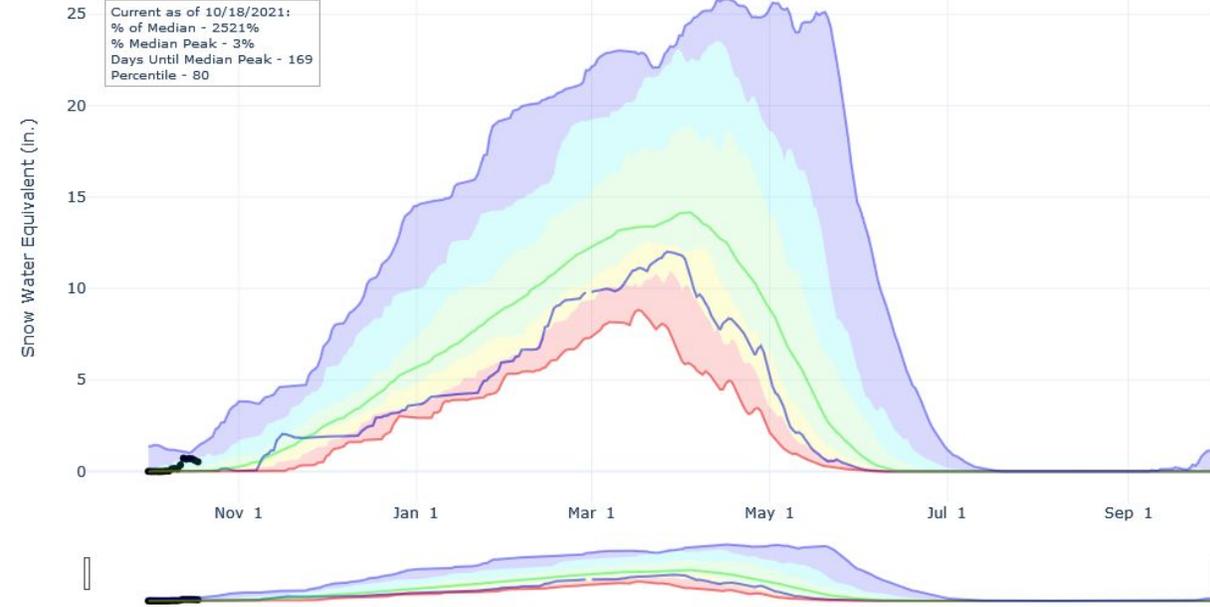
## SNOW WATER EQUIVALENT IN STATE OF UTAH

Reset Range

Link to data: CSV / JSON

Station List

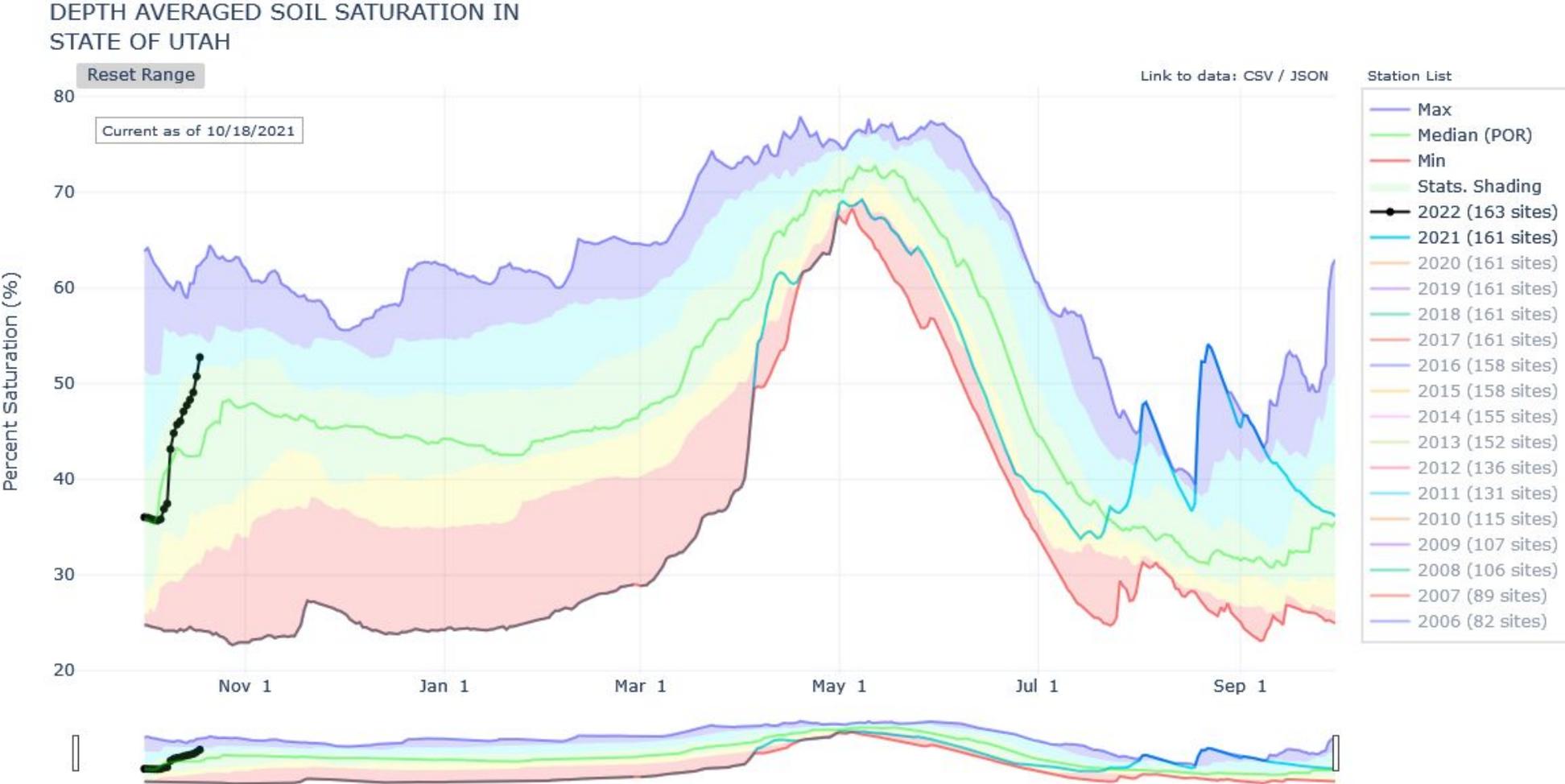
- ★ Median Peak SWE
- Max
- Median (POR)
- Median ('91-'20)
- Min
- Stats. Shading
- 2022 (113 sites)
- 2021 (113 sites)
- 2020 (113 sites)
- 2019 (113 sites)
- 2018 (112 sites)
- 2017 (113 sites)
- 2016 (113 sites)
- 2015 (113 sites)
- 2014 (113 sites)
- 2013 (113 sites)
- 2012 (113 sites)
- 2011 (113 sites)
- 2010 (104 sites)
- 2009 (98 sites)
- 2008 (98 sites)
- 2007 (95 sites)
- 2006 (95 sites)



Agency - NRCS Snow Survey  
 Presenter - Jordan Clayton

# Soil Moisture

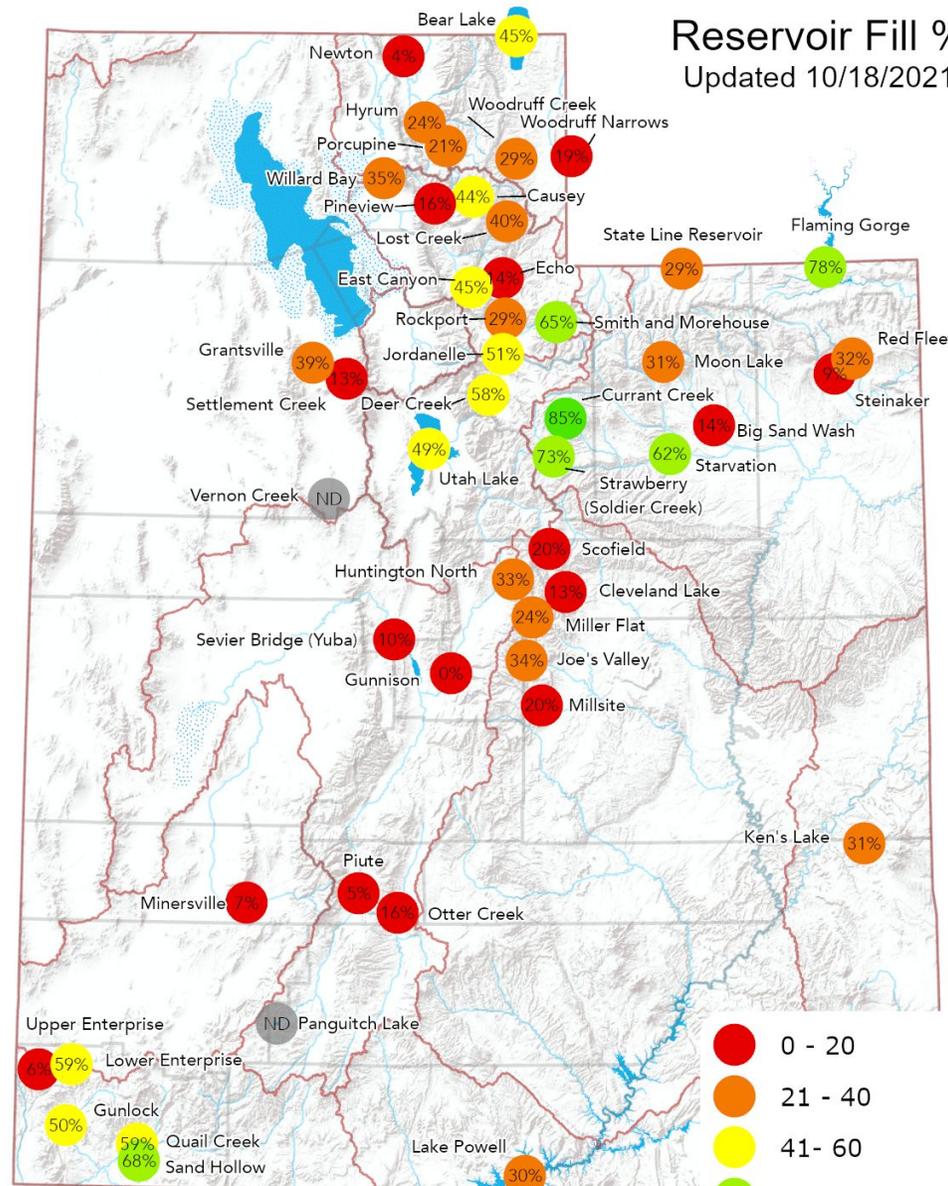
Depth-averaged  
SNOTEL only





# Reservoir Fill %

Updated 10/18/2021



Data Sources  
 Bureau of Reclamation, Bear River Commission,  
 Duchesne County Water Conservancy District,  
 Emery Water Conservancy District,  
 Utah Division of Water Rights,  
 Sevier River Water Users Association,  
 Washington County Water Conservancy District

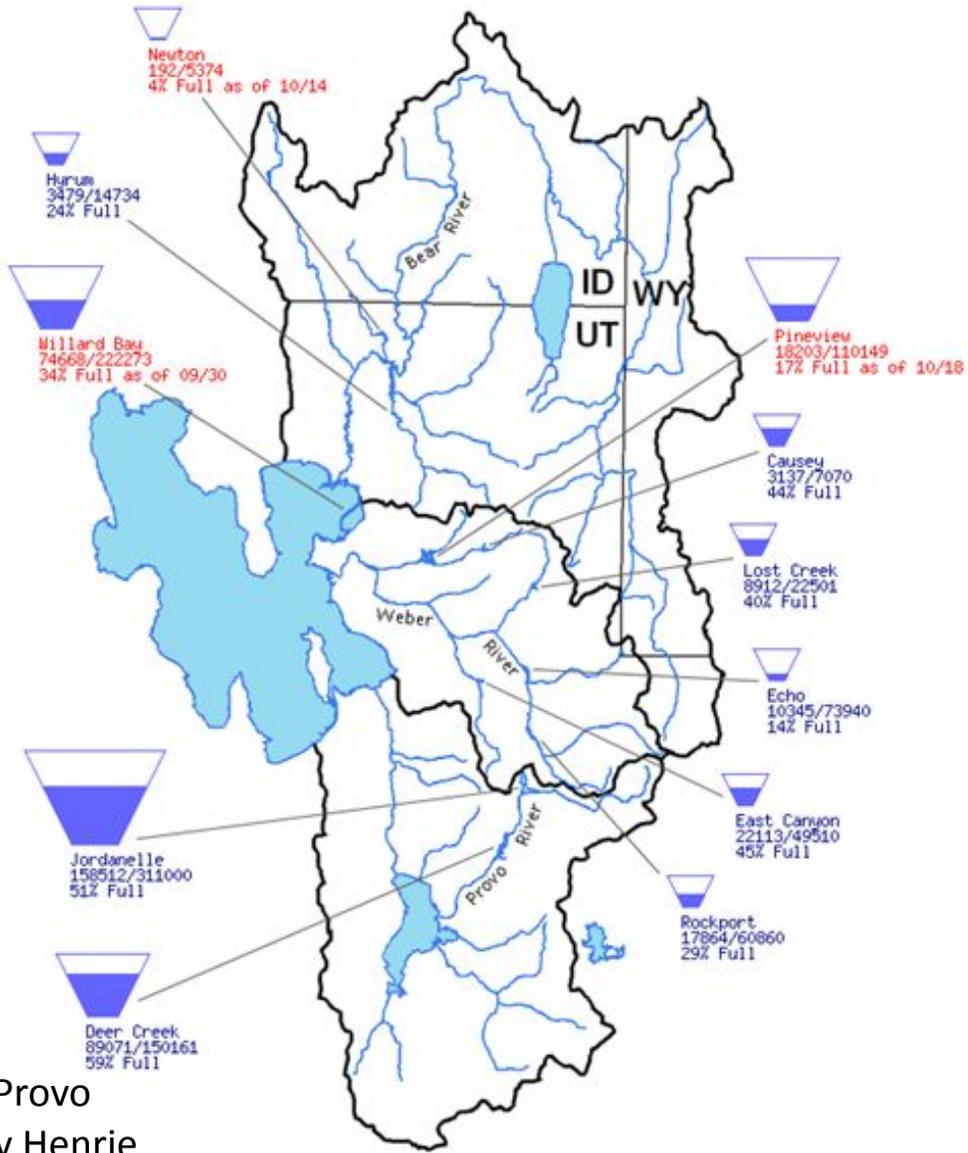
- 0 - 20
- 21 - 40
- 41 - 60
- 61 - 80
- 81 - 100
- No Data

Agency - Division of Water Resources  
 w/NRCS & other data  
 Presenter - Laura Haskell

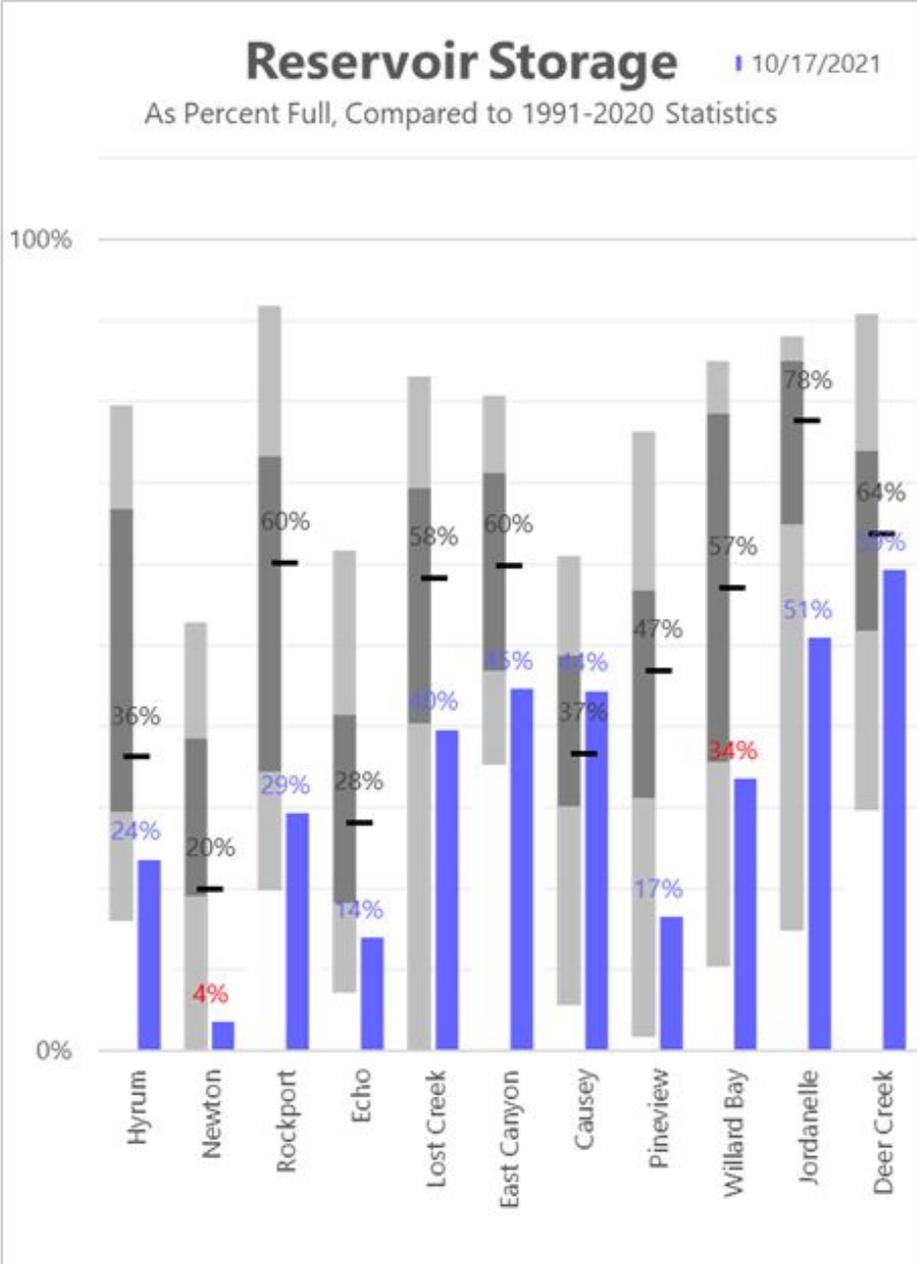
# Reservoir Storage – Great Basin

Data Current as of:  
10/17/2021

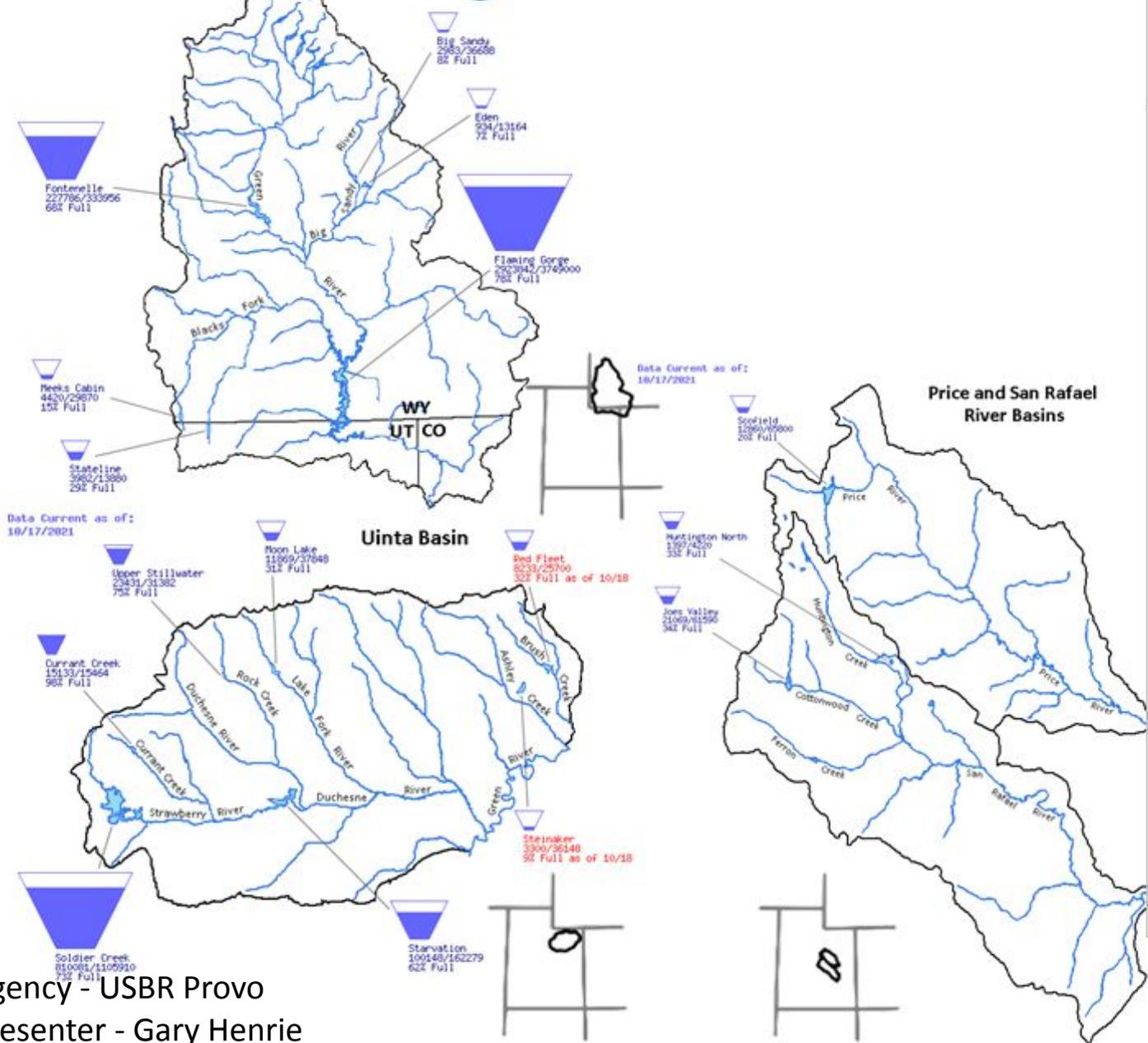
## Bear, Weber, and Provo River Basins



Agency - USBR Provo  
Presenter - Gary Henrie

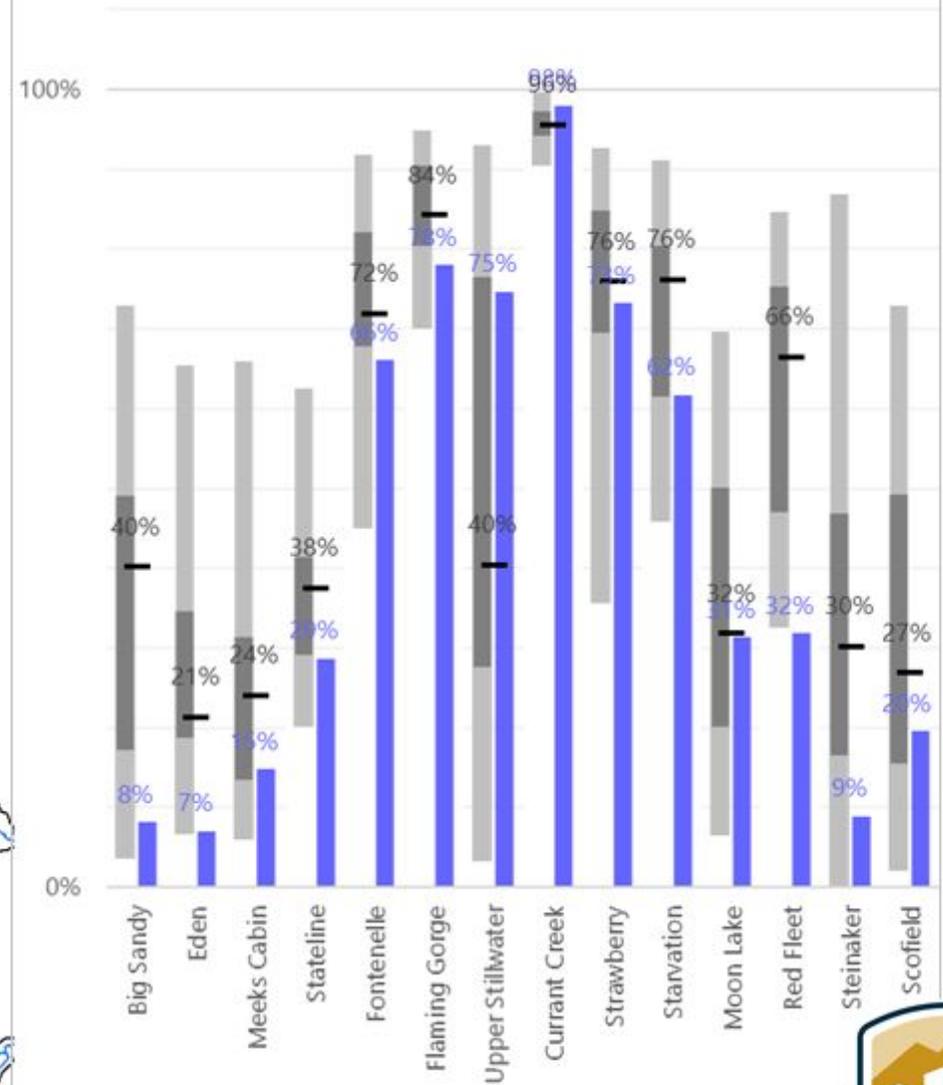


# Reservoir Storage - Green Basin



## Reservoir Storage

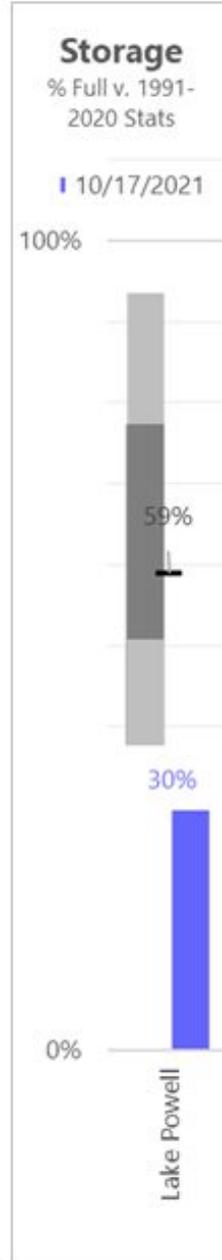
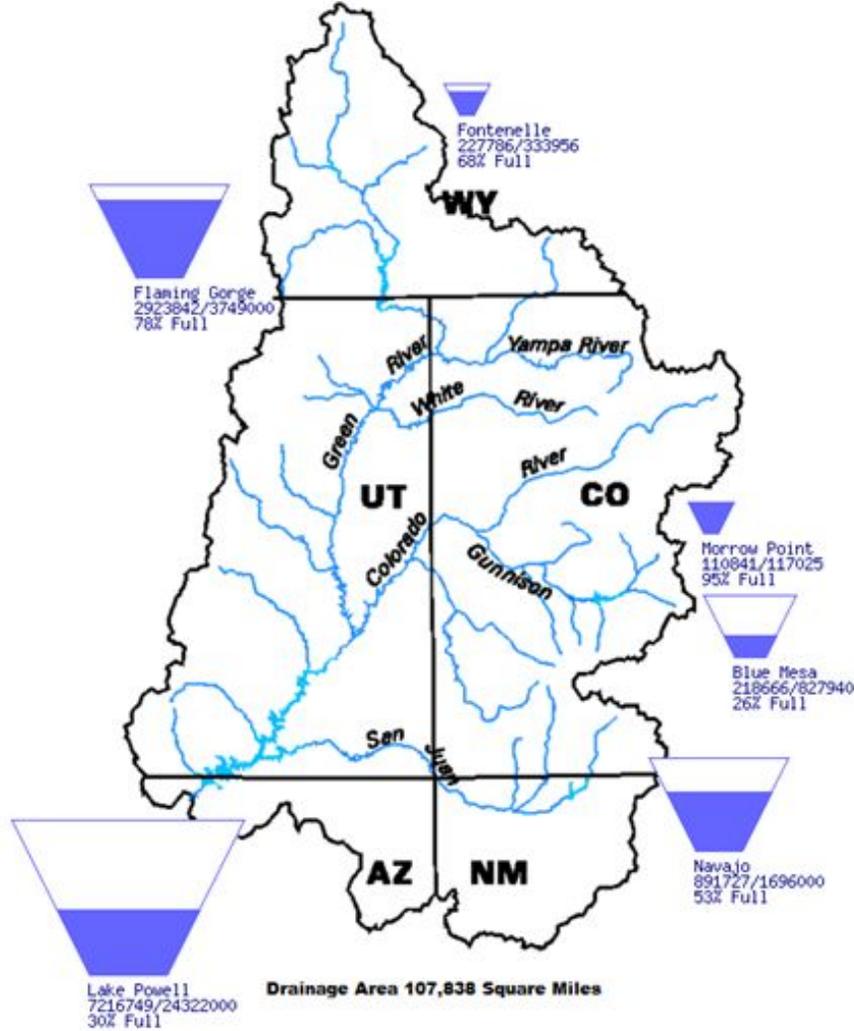
As Percent Full, Compared to 1991-2020 Statistics



# Reservoir Storage – Lake Powell

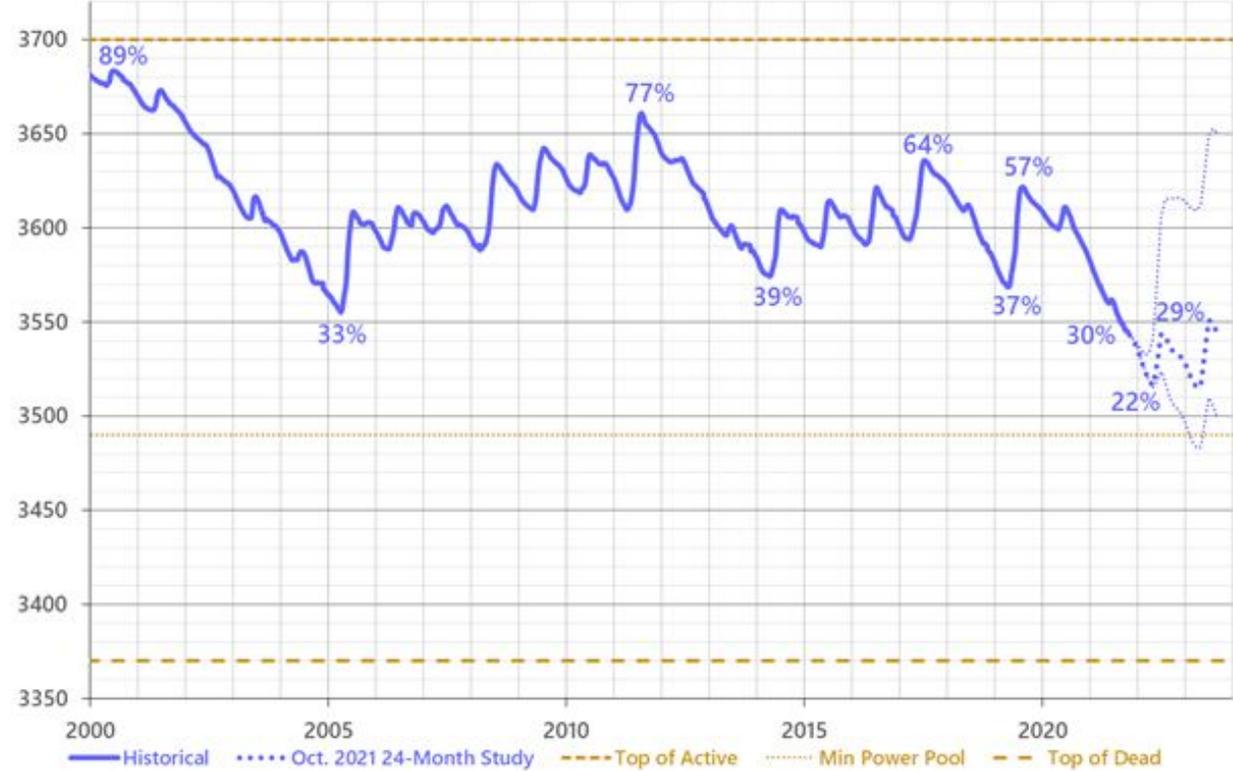
Data Current as of:  
10/17/2021

## Upper Colorado River Drainage Basin



## Lake Powell

Elevation in feet



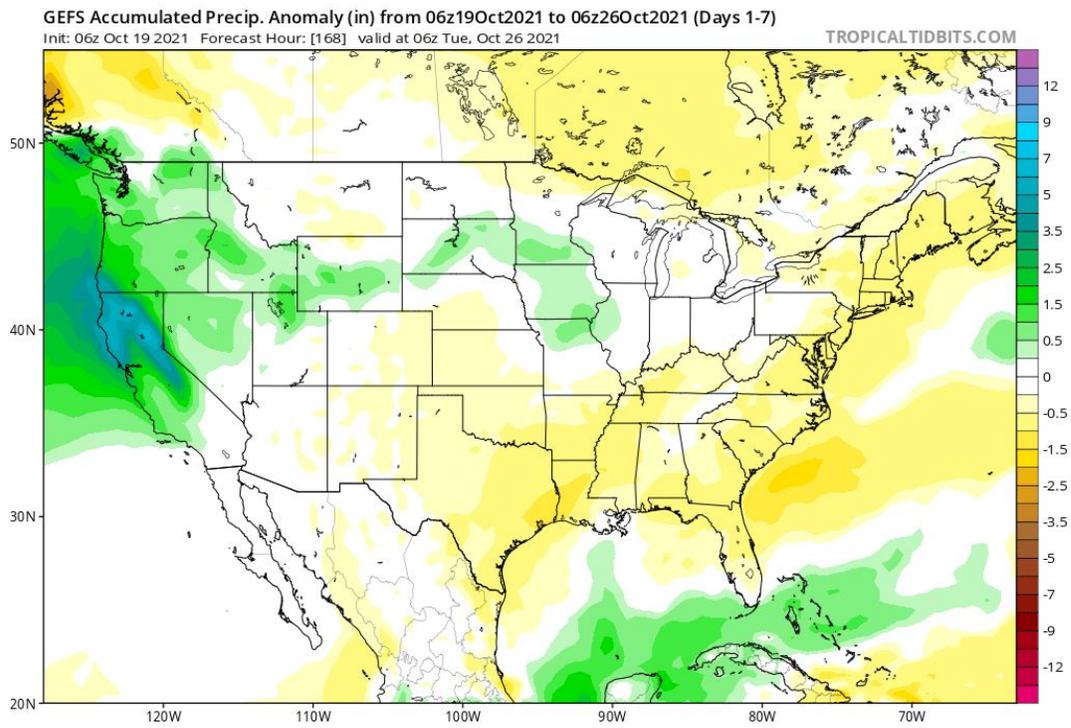
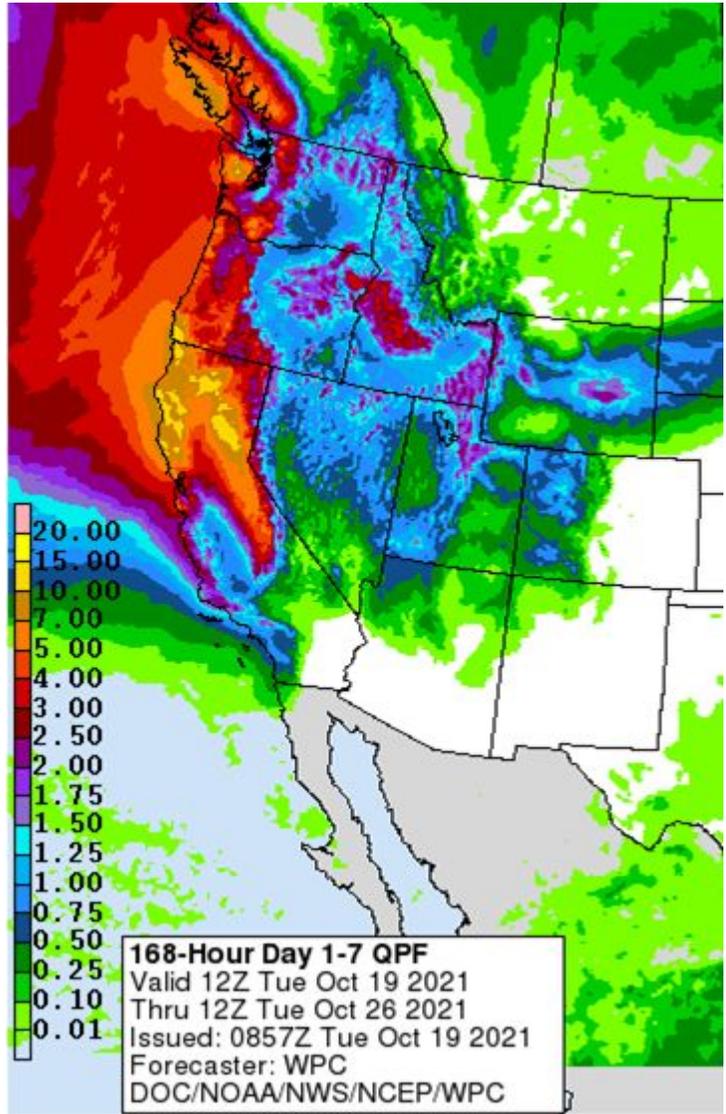
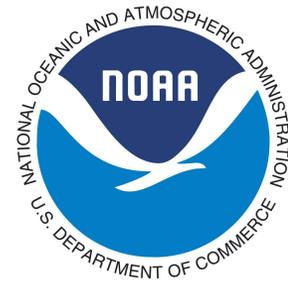
Consistent with the Upper Basin Drought Response Operations Agreement (DROA) provisions to protect a target elevation at Lake Powell of 3,525 feet, this October 2021 24-Month Study includes releases from the upstream initial units of the Colorado River Storage Project Act to deliver an additional 181 thousand acre-feet (kaf) to Lake Powell by the end of December 2021. The additional releases began in July and will continue to be implemented based on the following schedule:

	Jul (kaf)	Aug (kaf)	Sep (kaf)	Oct (kaf)	Nov (kaf)	Dec (kaf)	Total (kaf)
Flaming Gorge Reservoir	13	42	43	27	0	0	125
Blue Mesa Reservoir	0	14	18	4	0	0	36
Navajo Reservoir	0	0	0	0	10	10	20
<b>Total (kaf)</b>	<b>13</b>	<b>56</b>	<b>61</b>	<b>31</b>	<b>10</b>	<b>10</b>	<b>181</b>

Agency - USBR Provo  
Presenter - Gary Henrie



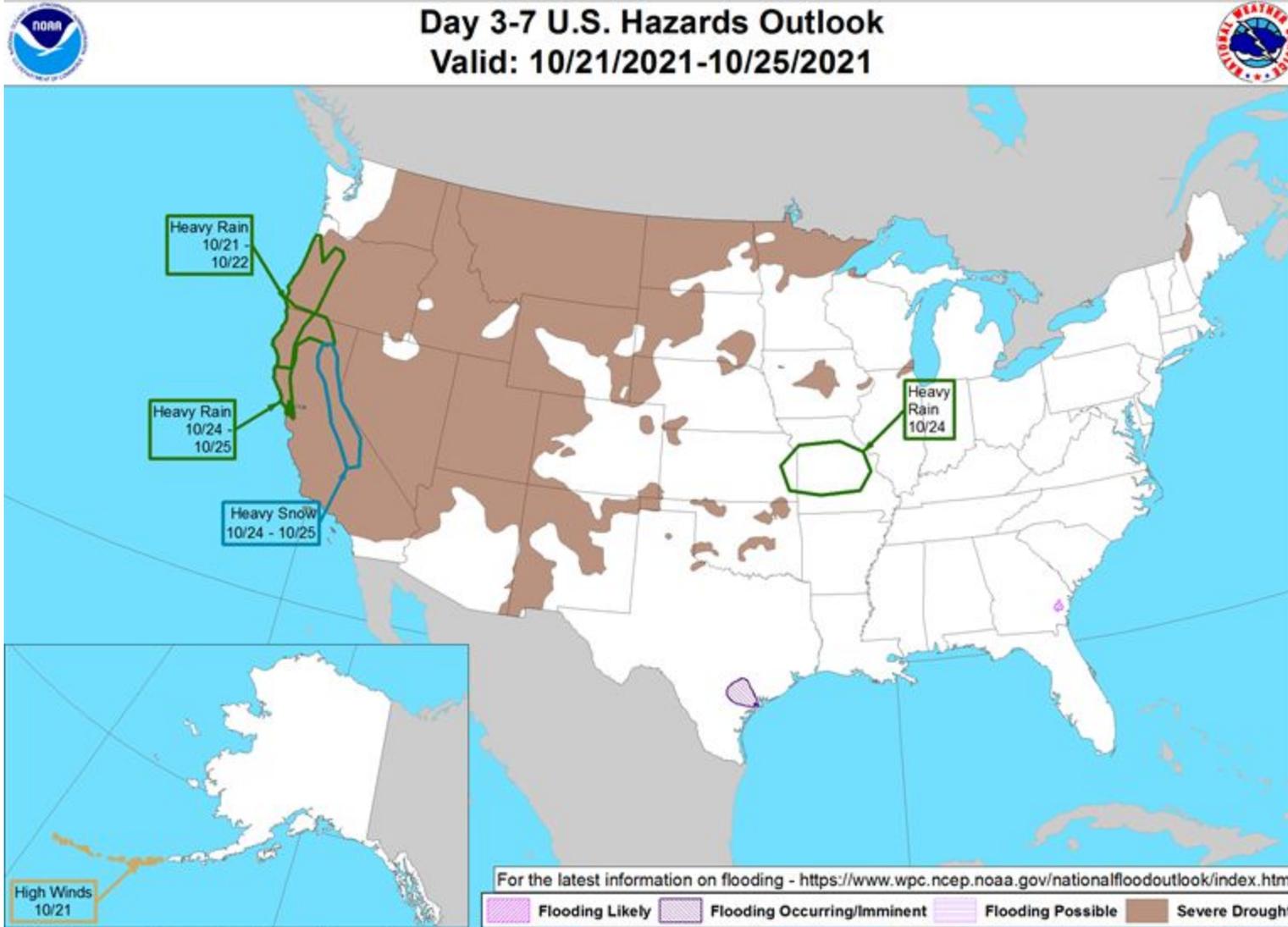
# Weather Forecast Office Utah Day 1-7 Outlook



- Drying and warming conditions through late week.
- Becoming increasingly unsettled this weekend.
- Increasing potential for an inland penetrating atmospheric river early next week.

Agency - National Weather Service Weather Forecast Office  
Presenter - Glen Merrill

# Weather Prediction Center U.S. Day 3-7 Hazards Outlook



**Weather Prediction Center**

Made: 10/18/2021 3PM EDT

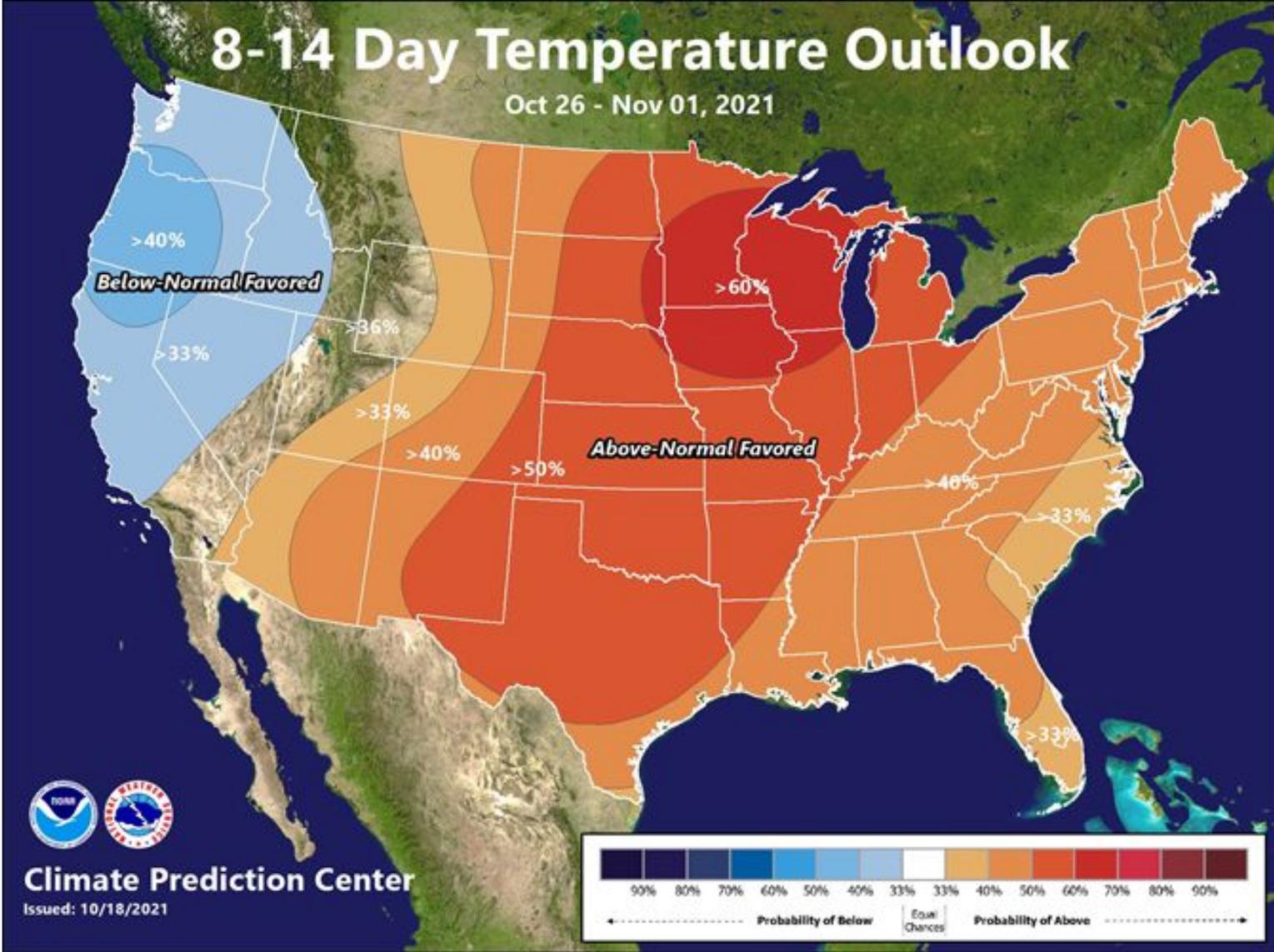
Follow us:

[www.wpc.ncep.noaa.gov](http://www.wpc.ncep.noaa.gov)

Agency - National Weather Service Weather Forecast Office

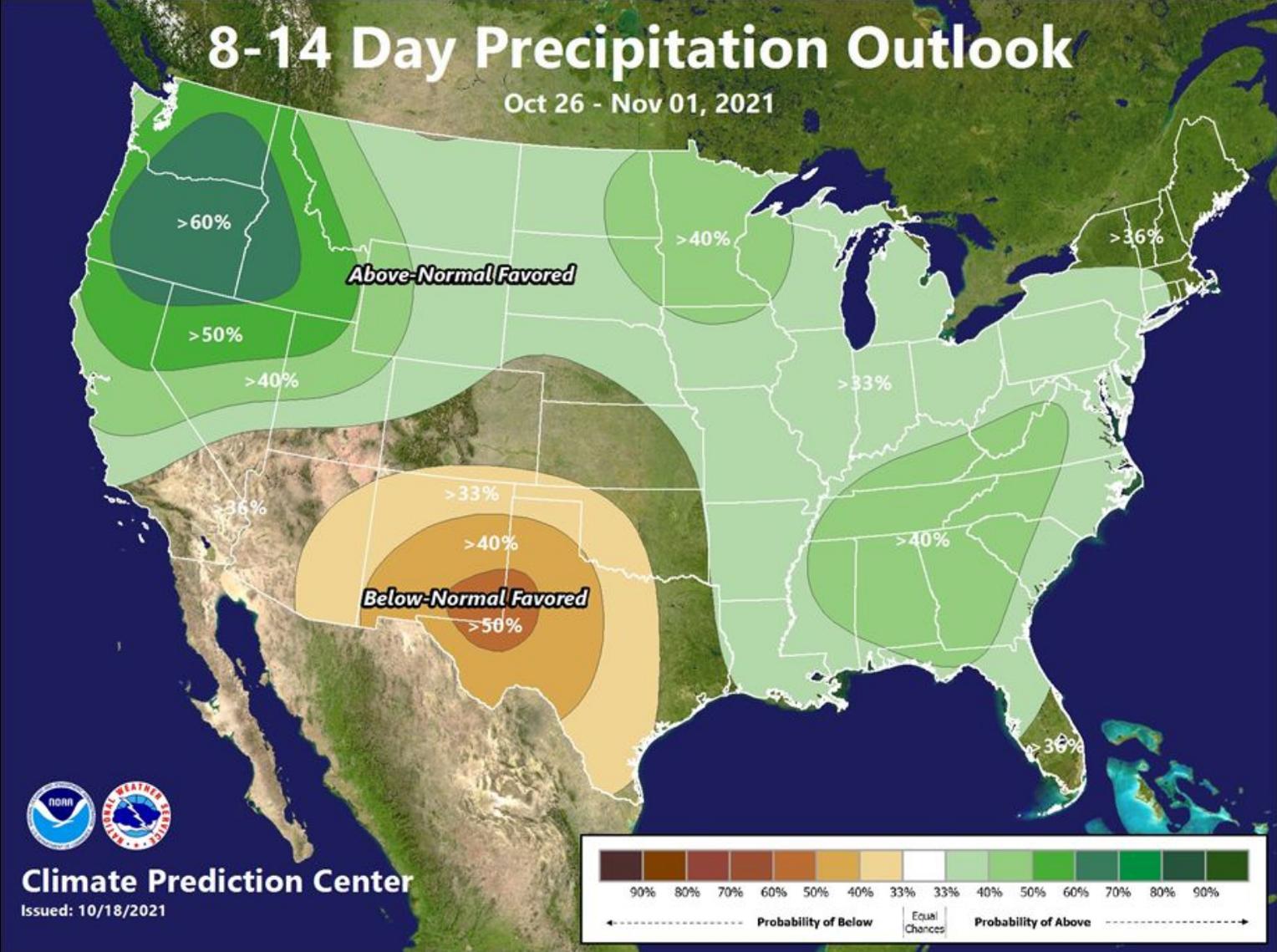
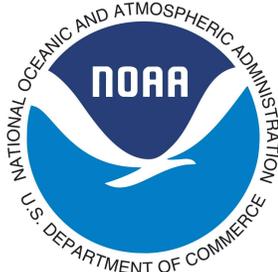
Presenter - Glen Merrill

# Climate Prediction Center 8 to 14 Day Outlooks - Temperature



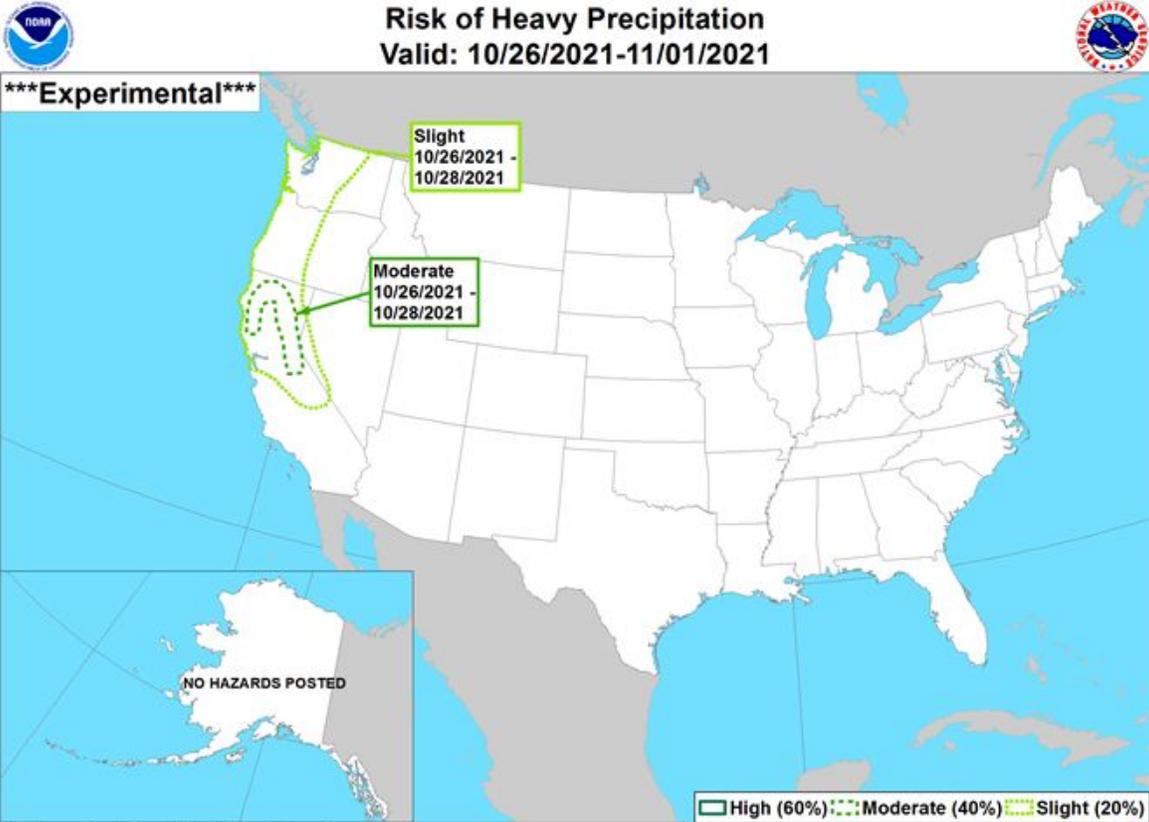
Agency - National Weather Service Weather Forecast Office  
Presenter - Glen Merrill

# Climate Prediction Center 8 to 14 Day Outlooks - Precipitation

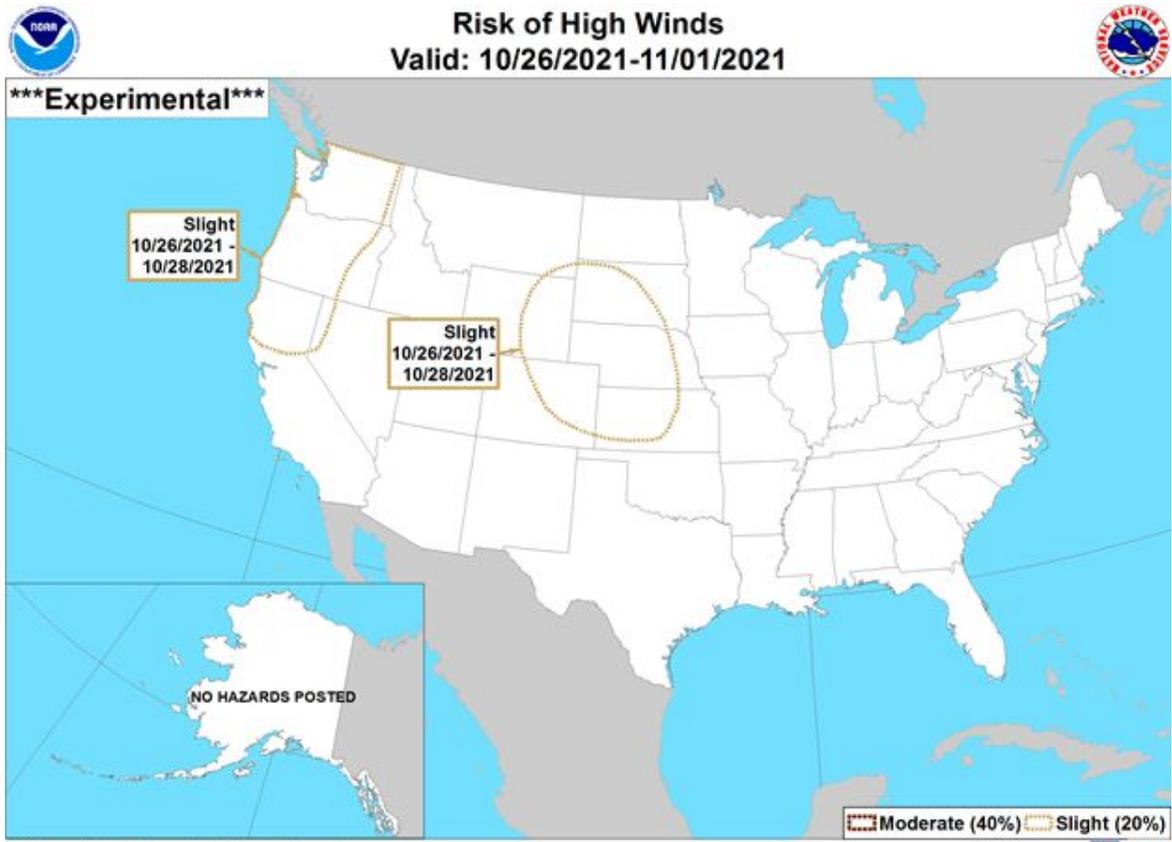


Agency - National Weather Service Weather Forecast Office  
Presenter - Glen Merrill

# Climate Prediction Center U.S. Week-2 Hazards Outlook



Climate Prediction Center  
Made: 10/18/2021 3PM EDT  
Follow us:   
[www.cpc.ncep.noaa.gov](http://www.cpc.ncep.noaa.gov)



Climate Prediction Center  
Made: 10/18/2021 3PM EDT  
Follow us:   
[www.cpc.ncep.noaa.gov](http://www.cpc.ncep.noaa.gov)

Agency - National Weather Service Weather Forecast Office  
Presenter - Glen Merrill

# April through July Water Supply Forecasts Begins January 2022



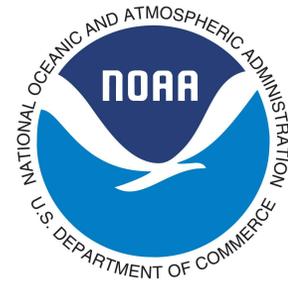
Currently CBRFC has been involved in extensive upgrades to the model and new target climate averages for the period 1990-2021 which are incorporated into all WS forecast going forward into WY2022. We'll have a webinar in December most likely to discuss the whatever changes we've observed in precipitation and streamflows.

Our current focus is on preparing for the new Water Supply Season, Jan 1 - June 1.

Conditions for the first month of WY22 are showing good promise with a wet and cool pattern that looks to be persistent through the 28th. A wet fall soil moisture profile often leads to a higher potential for a good spring runoff if conditions are right post April, i.e. Spring is wet and we have average to above average April 1, 2022 SWE value. It's a lot to ask for but the set up this fall gives us pause to be hopeful.

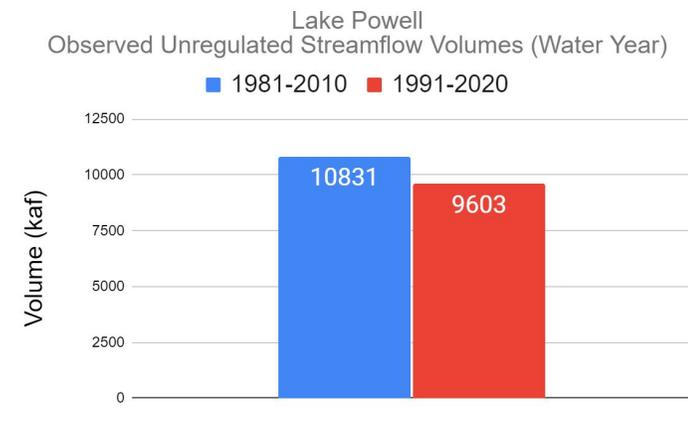
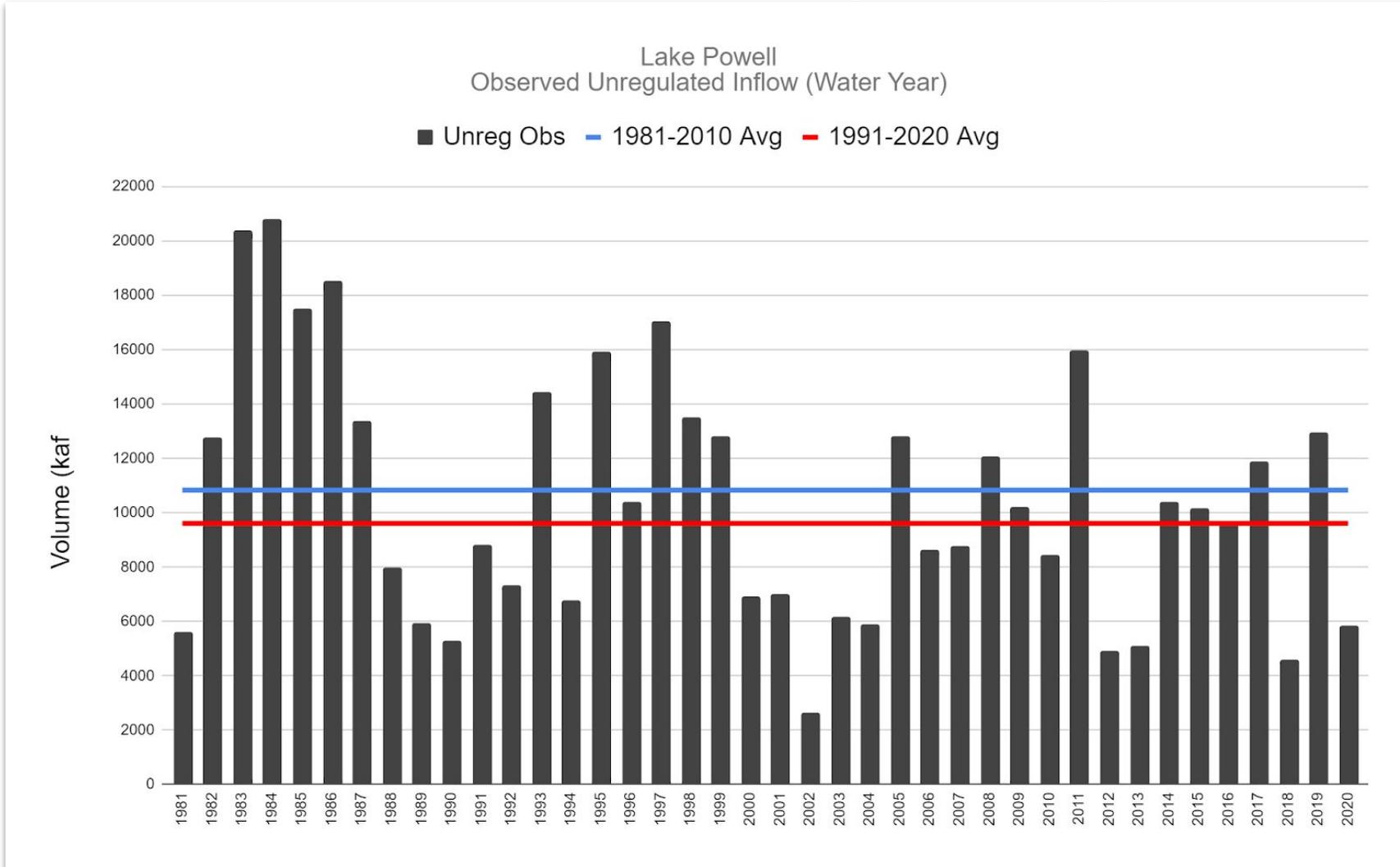
Agency - CBRFC

Presenter - Brent Bernard



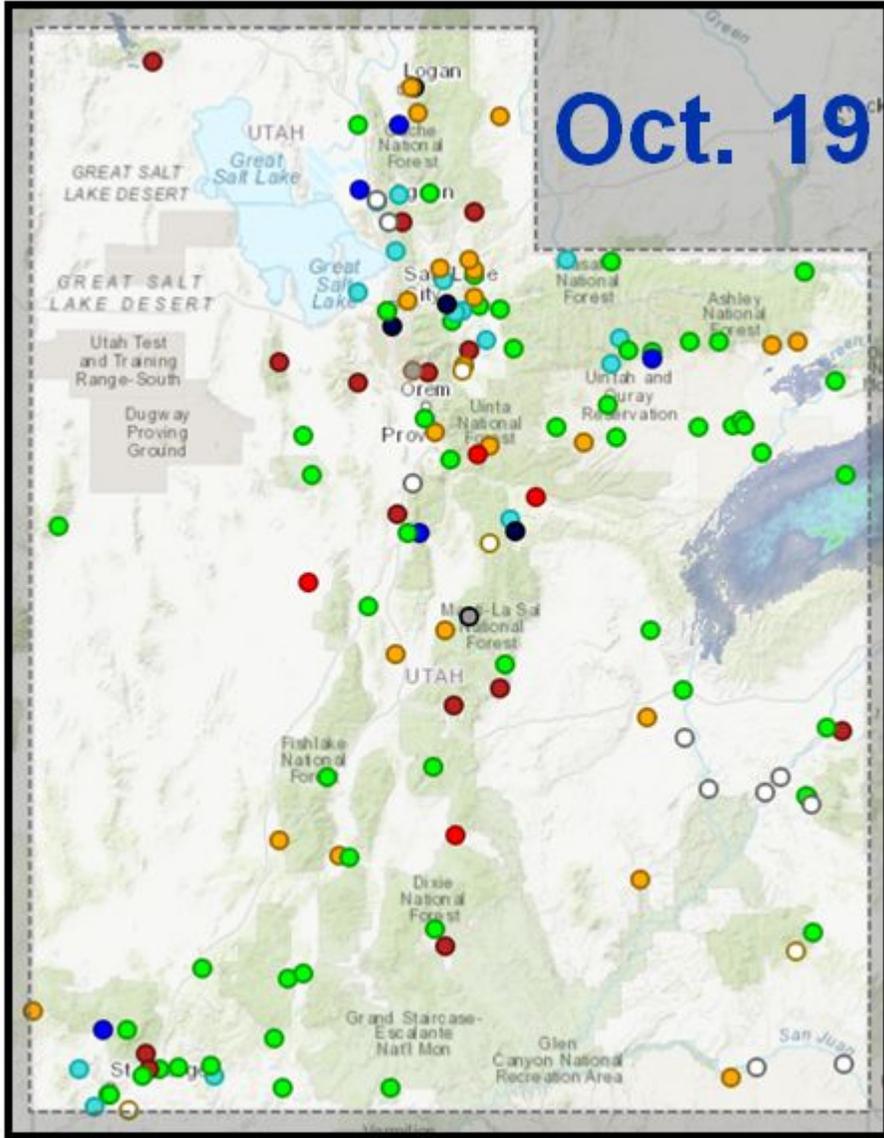
# New 1991 - 2020 Lake Powell A-J and WY Avg. Balance of Work Complete by 11/1/2021

April - July: 10.7% decrease  
Water Year: 11.3% decrease



Decadal Averages:  
1981-1990: 12,827 kaf  
2011-2020: 9,148 kaf  
%Change: -28.7%

# Current Streamflow Conditions



Day-of-Year Status		
All-time high for this day-of-year	3	2.2%
Much above normal for this day-of-year	5	3.6%
Above normal for this day-of-year	15	10.9%
Normal for this day-of-year	56	40.9%
Below normal for this day-of-year	22	16.1%
Much below normal for this day-of-year	14	10.2%
All-time low for this day-of-year	4	2.9%
Not ranked - insufficient record	11	8.0%
Not ranked - no recent measurement	3	2.2%
Not ranked - stream not flowing	3	2.2%

**Streamflow: Status**

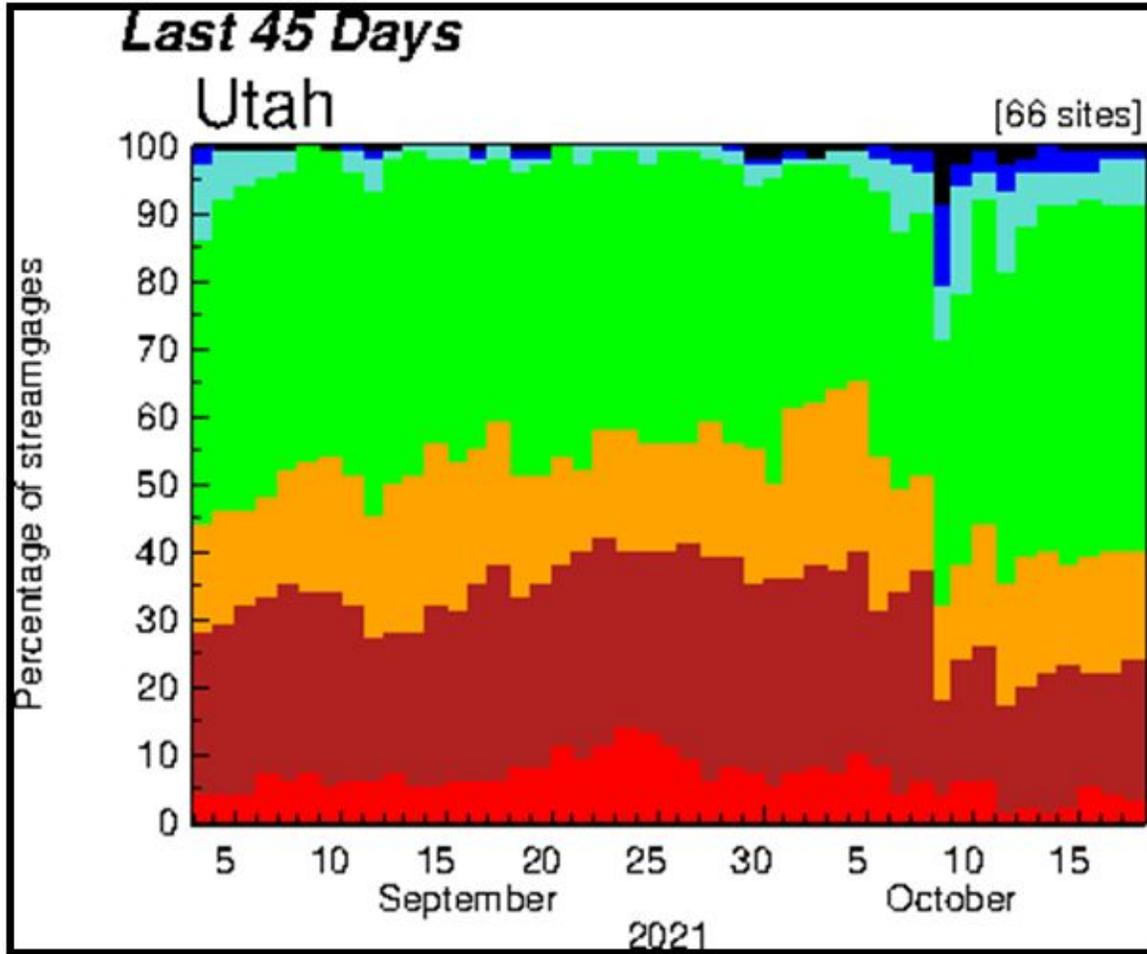
- Above flood stage
- All-time high for this day (100<sup>th</sup> percentile (maximum))
- Much above normal (>90<sup>th</sup> percentile)
- Above normal (76<sup>th</sup> – 90<sup>th</sup> percentile)
- Normal (25<sup>th</sup> – 75<sup>th</sup> percentile)
- Below normal (10<sup>th</sup> – 24<sup>th</sup> percentile)
- Much below normal (<10<sup>th</sup> percentile)
- All-time low for this day (0<sup>th</sup> percentile (minimum))
- Not flowing
- Not ranked
- Measurement flag
- Recent measurement unavailable

Sites must have at least 10 years of record to be ranked

Agency - USGS Utah Water Science Center  
 Presenter - Ryan Rowland



# Current Streamflow Conditions



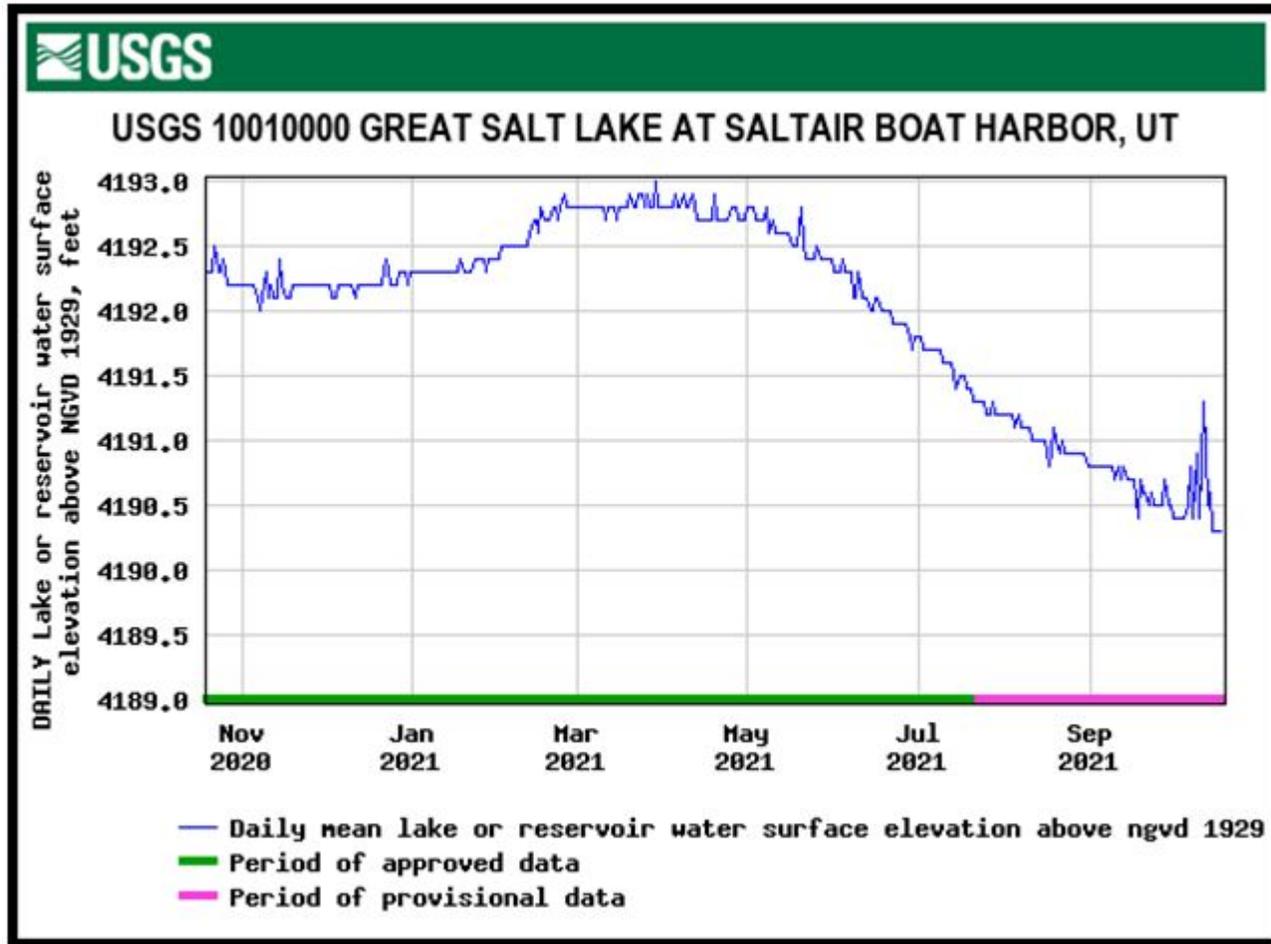
Explanation - Percentile classes							
Low	<10	10-24	25-75	76-90	>90	High	No Data
	Much below normal	Below normal	Normal	Above normal	Much above normal		

- Mean daily Streamflow compared to historical streamflow for the day of the year
- Sites must have at least 30 years of record to be included in this graphic

Agency - USGS Utah  
Water Science Center  
Presenter - Ryan Rowland



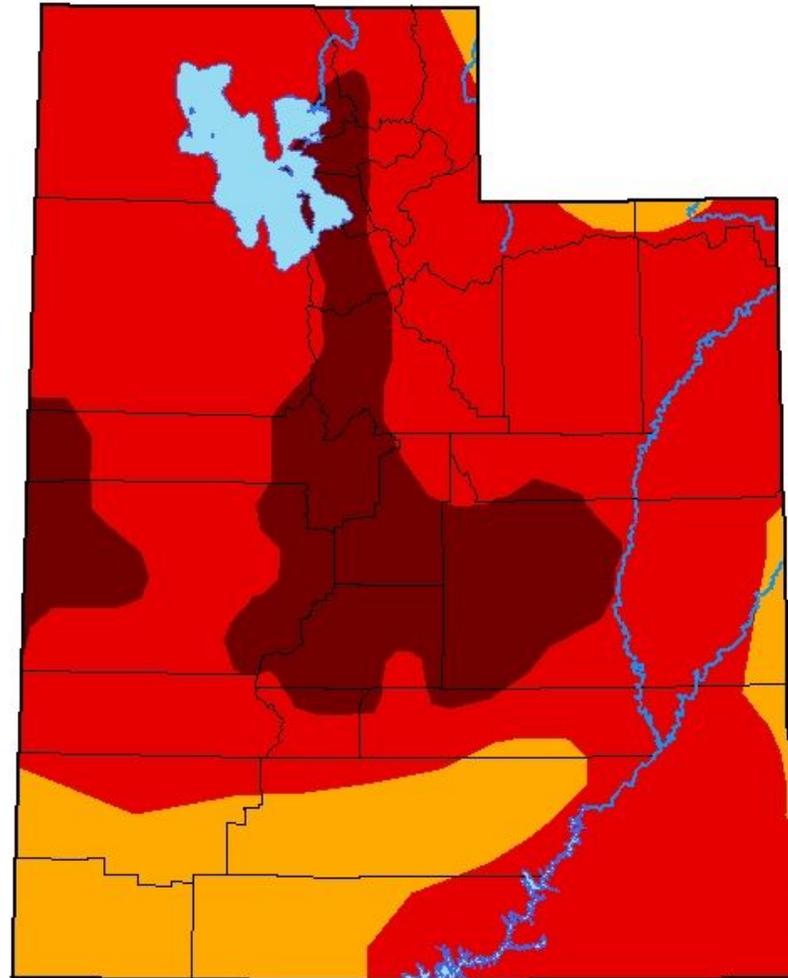
# Great Salt Lake Water Surface Elevation (southern half)



- ❑ Mean daily value 10/18/2021 = 4,190.3'
- ❑ Broke historic low record on 7/21/2021 when daily mean value = 4,191.3'
- ❑ Site has data record dating back to 1847

# U.S. Drought Monitor Utah

**October 12, 2021**  
(Released Thursday, Oct. 14, 2021)  
Valid 8 a.m. EDT



### Intensity:

-  None
-  D0 Abnormally Dry
-  D1 Moderate Drought
-  D2 Severe Drought
-  D3 Extreme Drought
-  D4 Exceptional Drought

*The Drought Monitor focuses on broad-scale conditions. Local conditions may vary. For more information on the Drought Monitor, go to <https://droughtmonitor.unl.edu/About.aspx>*

### Author:

Adam Hartman  
NOAA/NWS/NCEP/CPC



[droughtmonitor.unl.edu](https://droughtmonitor.unl.edu)